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A MANUAL
— OF —
EXOTIC FERNS & SELAGINELLA
COMPRISING DESCRIPTIONS OF OVER
ONE THOUSAND SPECIES AND VARIETIES,
AND UPWARDS OF
SIX HUNDRED SYNONYMS;
ALSO NOTES ON THEIR
HISTORY, CULTURE, & MANAGEMENT.

BY E. SANDFORD,
GARDENER TO C. J. FLETCHER, ESQ., DALE PARK.

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PREFACE.

IN this little work there is no pretence of the priority of any of the names, as that is open to such conflict among authorities ; but the whole names, or synonyms, are to be found in different books under one or other of such names. All are placed in alphabetical order, that being the easiest for reference ; but, in the way of synonyms, I know it is far from complete, as to bring all from ancient writers would fill a volume of itself ; at the same time I hope that it will prove a benefit to the amateur as well as the professional.

In conclusion, I trust that this will meet with approbation, and prove as useful as is intended by the Author, then that end will be attained for which the writer has *aimed*.

ERRATA.

Page 26, *read* Bernhardi, an Italian botanist.

Page 31, for *Adiantum agsimile*, *read* *assimile*.

Page 92, under *Cyathea excelsa*, *read* with the pinnæ on finely, &c.

Page 105, under *Dicksonia Berteroana* for five segments, *read* fine

Page 107, after *D. Menziesii* var *pruinatum*, *read* *sec Cibotium pruinatum*.

Page 155, under *Lastrea Maximoswiczii* for five segments, *read* fine.

Page 168, under *Lomaria Fraseri*, *read* the under side when fertile, &c.

Page 202, under *Platyserium alcicorne*, *read* from Java and New South Wales.

INTRODUCTION.

In bringing this work before the public I have endeavoured to describe all the species herein enumerated, in the plainest manner, trusting that it will prove of value to those interested in ferns, whether in their culture or otherwise. It is scarcely possible to describe the progress made in the knowledge of this class of plants during the last fifty years, or twenty; for which we must thank the private enterprise of those whose names are familiar to all horticulturists—such names as Veitch, Bull, Williams, Henderson, Backhouse, Stansfield, and many more too numerous to be mentioned here. Nor must I fail to allude to Messrs. Smith, Moore, Baker, and Sir J. D. Hooker, who in the present day have done so much in the work of arrangement and classification. I do not at all wonder that this class of plants has found such favour among the public, and hope to see the day when they will be more cultivated than now; for what can be more lovely than a fernery filled with a collection of these charming plants? Of all heights, forms, and sizes! and some that will commend themselves to everyone. Nothing is more beautiful than the stately

tree ferns, such as *Alsophilas*, *Cyatheas*, and *Dicksonias*; then there are the subarborescent ones, such as some of the *Lomarias*, *Blechnums*, and the beautiful *Brainea insignis*. Some may be found to suit every place in the fernery; on the roof may be grown in baskets such genus as *Davallias*, *Nephrolepis*, *Goniophlebiums*, *Pleopeltis*, some of the species of *Adiantums*, and several others; on the walls may be grown the different species of *Platycteriums* and even in the tank of a warm fernery may be grown *Acrostichum aureum*, and *Ceratopteris thalictroides*; and the pillars may be adorned with some of the species of *Gleichenias*, *Platyloma's*, and *Lygodiums*; most of all these are easy of culture. A fernery may be made one of the most interesting places of the garden, even at a small outlay: there are many ferns at a reasonable price, and many that may be grown in the open air; while the British species, which are none the less interesting, form a grand entrance to those which require a warmer temperature. Ferns are such useful plants, decoratively, that no arrangement seems to be perfect without their aid—more especially so the genus *Adiantum*, while some of the others are equal in beauty and gracefulness. They are also very interesting plants for invalids, as some of them will grow where no other plants will—in bottles, on pieces of board, cork, and rustic baskets, shells, and other things, and in cases. For the management of these, see the chapter on cases. I have heard of ferns being planted in air-tight cases, and having neither water nor air for seven years, and then appearing quite healthy.

Ferns may be divided into three classes:—(1) requiring a stove, (2) greenhouse temperature, (3) will grow in the open air. The stove

species will do in a winter temperature of not less than 55 degrees Fahrenheit, which must be the lowest. I do not mean to say that none which are stated to be stove species will do lower than this, but taking them as a body, that should be the lowest point; and rising in the summer to 80 or 90 degrees Fahrenheit. The greenhouse species should not be allowed to go below 40 degrees, but here again, some will succeed with a lower temperature. Some of the so-called greenhouse species will stand ordinary winters out of doors, in sheltered situations, and when we get a more severe winter they have to succumb. There are also many of the so-called stove and greenhouse ferns that will do well out of doors in shady places during the summer—such as have been used at different times in Battersea-park, *Platycerium*, *Thamnopteris*, and some of the tree ferns, giving it quite a tropical appearance.

In round numbers there are nearly 3,000 species of ferns; and in some parts of the world, especially of tropical climate, there appear to be many species in a very small space; for instance, Dr. Spruce found in Peru, within a diameter of fifty miles, two hundred and fifty species, and three hundred and forty have been found in the British possession of the West Indies. Borneo has also contributed a great number, and Mr. F. W. Burbidge, when exploring that island a year or two back, added about fifty more to the number. The Kew collection dates from the year 1775, when Francis Masson, who was sent out from Kew, sent home several species from Madeira and the Cape of Good Hope. The first introduction from Australia was about the year 1808. In the year 1822, there were only about forty species, and even as late as the year 1857, they had reached to the number of

five hundred and sixty only ; every year we get fresh additions of new species. There appears to be a wide unexplored field even now in South Africa, the fern flora there being very rich, and very few have as yet been added to our collections. The tree ferns from the antipodes are found now in great abundance in all private collections of any note. The lovely filmy ferns are also grown in great numbers in many establishments. Messrs. Backhouse, of York, appear to grow them to greater perfection than most. In a rockery in their establishment is a cavern, deep and shady, with a trickling rill of water ; here many of the species appear to be at home, and grow luxuriously. But in most ferneries they are best grown in cases, by the sides of walks, and where a humid atmosphere can be kept for their benefit. Ferns, with scarcely an exception, are impatient of the sun's rays. It is true they may be grown among other plants, both flowering and otherwise ; but they are seen to the best advantage when grown in a house devoted entirely to them, and to such plants as are at home in an air heavily charged with moisture.

Economic Uses of Ferns.

There is not very much to be said for them in this respect. The common brake, or bracken, is about the most useful ; it is used in various parts as bedding for cattle, and also makes a good material for packing fruit with, when the small pinnæ are drawn from the rachides. It has also such astringency that it has been used in dressing kid and chamois leather ; while the young fronds are said to be very fattening for pigs. Several of the exotic species have been used for food, but I think mostly in cases of necessity.

Huc states, in his Travels in Tartary, that the stems of the young fronds of some ferns (which were common in France), were eaten, when cooked, like asparagus, and were just as delicious ; some have also been eaten in the same way, in the British North American provinces of New Brunswick. Old writers attributed a great deal of virtue to ferns for medicinal uses ; but they are very little used in the present day, and I think only as an anthelmintic. The chaffy or hairy covering of the stipes of some *Cibotiums* has been used for beds and cushions, but so soon broke into dust that it proved useless.

On the Construction of Ferneries.

Although almost any glazed structure will do for ferns, and in almost any situation, they will be found to do best in a house entirely devoted to them, and to such plants as will do in a moist temperature. Ferneries have been greatly improved of late ; formerly the so-called ferneries were a mere barren rock of masonry. There are now several different materials used in constructing the rockeries, such as tufa, sandstone, and common stone, also virgin cork, while some use the roots of trees, but I do not think that an advisable material, as it encourages the growth of fungi, and soon rots. But in building rockwork for any plants, either in or out of doors, care should be taken not to allow one stone to overhang any of the recesses, or crevices ; when this occurs the plants beneath seldom get any water, and are either killed or brought into an unhealthy condition ; it should also be borne in mind to put plenty of earth between the various stones and to make the whole firm and solid. The best situation for a fernery is a south-west aspect, and either

a lean-to, or span roof : if intended for tree ferns, as well as others, I should certainly prefer a span roof. No glass is required for the sides, which can be made into rockwork, and have cases fitted up for the growth of filmy ferns ; form the walks, and rockwork as winding and undulated as convenient and make pockets and crevices where ferns may be planted with advantage. Some have water laid on for watering those that are planted out, through a perforated pipe, but it is a bad plan, as they are all watered whether requiring it or not, and many are killed in that way. For growing plants in pots, stages or slabs should be erected to place them on. There should be if possible, a tank with a fountain, as there are many ferns which do well near water, and it adds to the beauty of the structure ; baskets may be suspended from the roof, while the pillars, if any, may be clothed with the climbing species, and upright walls may be clothed with advantage by fastening wire netting to the wall, and filling the space between with moss and peaty soil ; ferns thus planted will soon establish themselves and form a grand feature. In the tank may be grown many aquatics that would do well and add to the interest of the fernery ; the quantity of pipes the houses require, depends on the size and height of the house. There are to be seen in different parts of the country, ferneries which appear to be the acme of perfection, having been erected by leading horticultural builders, London or provincial ; when a large structure is in contemplation it is always worth while to consult such a firm and to rely on their experience.

The Propagation of Ferns.

These plants are propagated by spores, divisions,

and by young plants that are formed on the ends of the fronds; several of the *Aspleniums* and a few other genus form them all over the fronds, when they are termed viviparous; while one species of *Cystopteris* produces little bulblike formations on the under side of the fronds, which, when mature, fall off, and are soon transformed into plants. Some genus are easily got from spores and a few are very difficult to raise at all, while others again seem to germinate and form what is called a prothallus, that is the first stage of growth, when they appear to be stationary. I have grown plants in a twelve month three feet high from spores; they are generally thought to soon lose their vitality, but I have known many instances where plants have been obtained from spores which have been taken from fronds that have lain in an herbarium several years. The following genus are amongst some of the most difficult to obtain from spores, *Angiopteris*, *Marattias*, *Gleichenias*, *Todeas*, *Hymenophyllum*, *Platynerium*, *Trichomanes*, and a few others, while some genus grow very freely, and a few make their appearance throughout the house where once grown. The best way to raise them from spores is to sow them in pots or pans on little crumb-like pieces of peat; placed in a close case they will soon germinate. When large enough to handle they should be pricked off in a mixture of peat and sand, and ultimately potted into single pots. Some of the species of *Adiantum*, *Aspleniums*, *Blechnum*, *Gymnogrammas* and *Pteris*, grow as freely as weeds, and some of the common species of some genus are sure to make their appearance with the more choice ones; and in some cases not one of the species that was supposed to have been sown, will appear but all will be of some other species. There does not appear to be any

authentic information on the fertilization of ferns, but it is generally admitted to be in the prothallus state; in some species there are great many varieties, and most of them come true from spores. *Pteris serrulata* is one of the most prolific in this way, and nearly all originated in cultivation. It is really astonishing to see the two extremes—one with a broad erected apex, while another terminates in a thread-like tail. But our British species seem to have played most pranks with Dame Nature, doubtless assisted by her. Some of the *Gymnogrammas* terminate in erected forms, and are of garden origin, while a few others are imported from their native haunts, such for instance, is *Microlepia hirta cristata* and a few others. Ferns were said formerly not to have seeds or spores, and came no one knew how, although Gerard knew in his time that they had spores or seeds. There was a great deal of superstition about fern seed for many ages, and even now, in our enlightened age, it is surprising what superstition still exists in different parts of the country. Propagation by division is easily effected with all the creeping rhizome species, and several of the erect growing ones, when divided they should be kept rather close, until they begin to grow, when they may be treated like the established ones. In the species which form the young plants on the fronds, they should be pegged to the soil, on the fronds if possible, and rooted before being separated from the parent. There are a few which produce young plants at the base of the frond, which when mature should be taken off, and put into a pot, with the base of the frond on the surface of the soil, and should be kept close until rooted, when they may be treated as established plants.

Insects, &c., that infest Ferns.

These like all other plants have their pests; white and brown scale, green fly, and thrip, are the principal enemies, while sometimes they are attacked by slugs, crickets, and cockroaches. The white and brown scale get on both the stipes and fronds, and are best got rid of by sponging with soft soap and water, about two ounces to the gallon; the green fly may be killed wholesale by the application of slight fumigations of tobacco smoke, which must not be very strong, especially when there is much young growth on the plants, as ferns are so impatient of smoke. As for the thrip, although tobacco smoke will kill them the safest way is to either syringe or sponge them with tobacco water, which may be made either from tobacco or the paper that is used for fumigating. The slugs are best got at by hunting for them at night, as they are almost sure to make their appearance in the vicinity, and may then be easily captured. The last two are worse than slugs; they also may be caught at night, but are best poisoned by some of the vermin poisons that are advertised in the different papers. Sometimes wood-lice eat the young fronds and are very troublesome; where they abound they may be taken by hollowing out potatoes, placing them about and examining them every day; a great quantity will soon be destroyed.

Soil and Potting.

A good general compost for ferns may be made with equal parts of peat, loam, and leaf-mould; a liberal addition of sand, small charcoal, or brickdust, may also be added with advantage. The pots should be well drained, and all in pots should be potted once a

year at the least, and if intended to make specimens in a short time, they should be potted as soon as the roots approach the sides of the pots. The best time to make a general potting is in February or March, as soon as the plants begin to grow. It will be found, however, that any which are epiphytal will grow best with fibrous peat and sand. Those that are planted out on the rockwork will be greatly benefited by having the surface carefully taken off, and fresh soil added once a year. In a healthy condition and pot-bound, many will be greatly improved by applications of weak manure water, about twice a week; great care must be taken not to over water the newly-potted plants, as the soil becomes sour and the plants unhealthy.

Tree Ferns.

These were thought a great novelty until very recently, but now they may be found in most private establishments, many imported from their native habitats, where some of them reach to the enormous height of eighty to one hundred feet. There are about two hundred species of tree ferns known to botanists, and these are scattered over various parts of the globe, but our supply has been principally from the Antipodes. There appears to be a great variety in different parts of Africa, but there are none natives of our Island. By the account of geologists, these massive vegetable productions must have played a prominent part in the formation of our coal wealth as there are many instances where they have not altered in form. Throughout the different coalbeds and shales are seen the traces of ferns; here may be seen a nice straight frond as if it

had been carefully laid out in an herbarium, and then again others seem to be in piles, crossing and recrossing one another, and the huge trunks have been proved by the aid of the microscope to be none other than the trunks of tree ferns. The low-growing ferns seem then, as now, to have formed the greatest number. There are many instances in which pieces of the fronds have been transferred to paper, but the greatest difficulty in classifying them, arises from want of the sori. It does not appear that the stems of these giants are so long in growing as was formerly supposed, as we find some make growth quite fast. The late Dr. Moore, when Director of the Botanic gardens, Glasnevin, found that *Cyathea Medullaris* grew to the height of ten feet, from spores, in less than twenty years, and *Dicksonia Antartica* grew five feet high, from a very small plant, in about thirty-four years, while some of the *Alsophilas* in the same gardens had only begun to form anything like a stem after about thirty years, while again, some plants of *Cyathea Arborea*, which were imported from Jamaica, made a stem thirteen feet high in twenty-two years, and *Cyathea Aculeata* in the same time made a stem five-and-half feet high. I have quoted this from so good authority to show the probable inaccuracy of the conjectures respecting the great age of some of these imported stems; some again which appear to be so long before they make anything like a stem, when once this is formed, continue to grow at a more rapid pace. I have heard of some making a stem, ten feet high, in seventeen years, and it is doubtful if they do not grow much faster in their native haunts, where the climate and moisture are more congenial to their requirements. Tree Ferns do well

in a mixture of equal parts of peat and loam, with an addition of coarse silver sand ; the principal requirement is plenty of moisture. The stems throughout the summer should be syringed two or three times a day ; they will do well in smaller pots and tubs than are generally seen in England. In Germany much smaller ones are used.

A few words may not be out of place here on the management of the trunks ; when imported they should be put in pots or tubs, with a little discretion as to the size, in the mixture recommended for growing them in, and potted firmly ; invert a flower pot over the crown, to keep the wet from rotting the young fronds ; the trunks must be syringed once every day until they are started, when they may be treated like the established ones.

Filmy Ferns.

If there is any royalty among ferns, I think that these claim the crown ; they are general favourites with all lovers of ferns, and are more easy of culture than was originally thought. *Hymenophyllum Tunbridgensis*, and *Trichomanes radicans*, or Killarney fern, are two representatives of this class in our country. They are plants that delight in a humid atmosphere, growing as they do in damp places, at the entrance to caverns, and near waterfalls, where the atmosphere is charged with moisture, and the rays of the sun never fall on them. They are best grown in cases in the different temperatures they require, and in some establishments have a house set apart entirely for them. The fronds should not be wetted with the syringe, but may be damped around the pots and floors, and pans of water may be placed for evapora-

tion; many people do syringe them, but it is not advisable. The species that form creeping rhizomes grow well on fern stems, and pieces of sandstone; there is also a kind of terra cotta made into the form of tree stumps, and this answers well for some of the species with climbing rhizomes, and they cling to it tenaciously; although these plants are impatient of the sunshine, they do not like to be grown in the dark, and healthy plants in this way will soon be brought into an unhealthy state. Most of the species grow well in fibrous peat, sandstone, and a little sphagnum added, with plenty of water at the roots, when growing and in a healthy condition; the pots should therefore be well drained. All the so-called greenhouse species will do in the dwelling-house in cases, and thrive admirably; the chief point in their cultivation is not to grow them in too dry and harsh a temperature. The so-called filmy ferns are summed up in the following genus, *Todea*, *Hymenophyllum*, *Feca*, and *Hymenostachys*; there are also a few *Aspleniums* that have the same beautiful transparent appearance, if grown in a close case. Specimen plants may be grown singly under bell-glasses, when they can be seen to advantage; air should be admitted to them, but very cautiously, for if allowed to come in direct communication, the fronds soon become rusty, and brown. Even our own native filmy species make nice plants for bell-glasses, and are no less beautiful than the exotic species.

Basket Ferns.

There are several species that are well adapted for this sort of culture, and are only seen to their best when grown in this way. It makes no real difference

of what form or material the baskets are composed. Wood baskets may be made in the same way as those made for orchids. There are some also made from clay, of the same form, and of course do not rot; wire baskets are largely used, and some are so elaborately made that they become very expensive, and if the ferns do well the artistic work is soon hid. The principal feature of the basket should be a good outline, and cheap galvanized wire ones are the best in wire work, as they do not rust. In preparing the baskets for plants, they should have a layer of sphagnum moss laid all the way round, and a mixture of peat and sand with chopped sphagnum will make a good compost to grow them in. It should be made firm, and they will require water three or four times a week when growing. Some of the species will form perfect balls by their creeping rhizomes; while others make grand plants on account of their graceful arching habit. The following species will be found suitable for basket work, and from them a nice selection may be made:—

Adiantum
 — *Æthiopicum*
 — *amabile*
 — *assimile*
 — *candatum*
 — *ciliatum*
 — *concinnum*
 — *c. latum*
 — *venustum*
 Asplenium
 — *alatum*
 — *flabellifolium*
 — *flaccidum*
 — *longissimum*
 Blechnum
 — *g. andulosum*
 — *Occidentale*
 — *polypodioides*

Cheilanthes
 — *temnifolia*
 Davallia
 — *aculeata*
 — *bullata*
 — *dissecta*
 — *elegans*
 Davallia
 — *hemiptera*
 — *pentaphylla*
 Doodia
 — *Lunulatum*
 Elaphoglossum
 — *viscosum*
 Goniophlebium
 — *appendiculatum*
 — *subauriculatum*

Hypolepis	Oleandra
—— distans	nodosa
Lastrea	Pellaea
—— decurrens	ternifolia
Leucostegia	Phegopteris
—— immersa	effusus
Lomaria	Pleopeltis
Gillisii	all the species
Microlepia	Pteris
hirta	scaberula
h. cristata	Stenochlæna
Nepherolepis	scandens
all the species	Woodwardia
Niphobulus	all the species
all the species	

Fern Cases or Shades.

This class of structure is becoming more in use daily ; they may be called, strictly speaking, miniature greenhouses, and nearly all the low growing species will thrive in them. They may be had of various forms, which is more of a matter of taste than anything else, and many are the species of ferns suitable. Requiring so little attention they are specially adapted for those whose spare time is extremely limited. Even invalids, lying day after day in a sick room, can watch with delight the development of ferns in a case. If the case is large miniature basket with some of the Liliputian race may be suspended ; while some of the filmy ferns will be found to grow well in them, but must be kept closer than the other species. These latter must have air admitted to them freely to keep them long in a healthy state, while the cases for filmy ferns must be kept closer to keep up a humid atmosphere. In preparing these cases for planting, great care must be taken to ensure a perfect drainage, which should be obtained by placing some rough material on the bottom, such as broken flower pots,

bricks, or cinders, on which should be laid a covering of moss to keep the soil from getting among the drainage; the soil should be composed of peat or leaf mould, with a little loam of a fibrous nature, and silver or river sand. The soil should be changed once a year, before growth commences is the best time; take all the plants up carefully, and then they may be planted again in the fresh compost. Should they at any time look in an unsatisfactory state, the plants should be taken out, when most probably the cause will be found. I do not think it necessary to say any further on their management; the principal secret is to give air and watering, to shade from the direct rays of the sun, and to take care not to over water them. Rocks in miniature may be formed and clothed with some small ferns, or *Selaginellas*. Many ideas may suggest themselves to the happy possessor of one of those cases, and many are the plants that he will find to suit any suggestion that may occur to him to add interest to the structure. The following species among many will be found suitable for cases in a dwelling-house:—

Adiantum
 — *Æthiopicum*
 — *affine*
 — *assimile*
 — *colrodes*
 — *cuneatum*
 — *excisum*
 — *e. multifidum*
 — *fulvum*
 — *gracillimum*
 — *Luddemannianum*
 — *pubescens*
 — *reniforme*
 — *rubellum*
 — *setulosum*
Anemidietyon
 — *phyllitidis*
 and varieties

Cassebeera
 — *intramarginalis*
Ceterach
 — *aureum*
Cheilanthes
 — *hirta*
 — *microphylla*
Cyrtomum
 all the species
Davallia
 — *canariensis*
Doodia
 all the species
Gymnogramma
 — *triangularis*
 all the greenhouse
 species

<i>Asplenium</i>	<i>Nephrodium</i>
— <i>alatum</i>	— <i>molla</i>
— <i>alternans</i>	— <i>n. corymbiferum</i>
— <i>Belangeri</i>	<i>Niphobolus</i>
— <i>erectum</i>	all the species
— <i>Fernandezianum</i>	<i>Pteris</i>
— <i>flabellifolium</i>	— <i>Chinensis</i>
— <i>monanthemum</i>	— <i>cretica</i>
— <i>obtusatum</i>	— <i>c. alba lineata</i>
— <i>obtusilobum</i>	— <i>scaberula</i>
— <i>præmorsum</i>	— <i>serrulata</i>
and its varieties	all the varieties
<i>Camptosorus</i>	<i>Rhipidopteris</i>
— <i>rhizophyllus</i>	— <i>peltata</i>
<i>Hemionitis</i>	<i>Schizeta</i>
— <i>cordata</i>	— <i>pusilla</i>
— <i>palmata</i>	<i>Scelopendrium</i>
<i>Hymenophyllum</i>	— <i>Krebsii</i>
— all the greenhouse species	<i>Selaginella</i>
<i>Hypolepis</i>	all the species
— <i>Bergiana</i>	<i>Todea</i>
— <i>distans</i>	— <i>pellucida</i>
<i>Lastrea</i>	— <i>plumosa</i>
— <i>acuminata</i>	— <i>superba</i>
— <i>glabella</i>	<i>Trichomanes</i>
<i>Lomaria</i>	<i>Woodsia</i>
— <i>alpina</i>	all the species
— <i>attenuata</i>	And all the dwarf growing
— <i>thuyatilis</i>	British species

Preserving and Drying Fronds.

The fronds that are intended for drying should be if possible, mature, and carefully dried under a slight pressure between absorbent paper, such as blotting paper; if the fronds are of a thick texture it would be best changed three times a week, for a month; the thinner texture ones will not require changing more than three or four times, when they may be transferred to the paper where intended to remain. Two fronds of each species should be got if possible, with one showing the front, and the other the back, but if not

obtainable, twist the frond in the middle, so that each side is exposed. Some fasten the fronds down by means of straps of paper, while others do not fasten them at all, but I think the best way is to fasten the whole frond to the paper; it is not so liable to become broken as when loose or partially fastened, and should they ever require to be removed they may be easily got off by immersing them in water for a short time. I have always kept them in a sort of portfolio with several sheets folded one in the other, and the ferns only on one side of the paper. The best thing I have found for fastening the fronds is a solution of glue and water, with a little common sugar added, and applied warm. The fronds, if not of the size they reach when full grown, should have full particulars as to the length they attain when mature, with their native country, and when introduced. No class of plants are so satisfactory for drying as ferns; the generality keep their colour so well, and are not subject to many insects in their dried state. I have had fronds several years, and they appear now as green as the day they were taken from the plant; where the fronds are large a part may be used, always bearing in mind to expose the sori; in the species that have barren and fertile fronds dissimilar, both should be obtained, if it is intended to be at all instructive. This is a thing which is within the reach of most people, and not only forms an interesting object but may in some instances bring back some pleasant remembrances. The thin texture species, arranged with a little taste, make very nice pictures when fastened on paper and varnished over, giving them very much the appearance of drawings. I have seen windows done somewhat in this way, and they have a nice appearance, especially with the

genns *Gymnogramma*, showing the underside of the gold and silver species. Some dry the fronds and use them in the winter in vases and they look well and have only to be done away with on account of the dust; but under a shade they last for years, and if some are bleached with chloride of lime they really make a nice winter bouquet, especially with the aid of a few ornamental grasses. A very simple way of photographing fronds is to get about six pennyworth of bichromate of potash, which can be obtained of any chemist, put it into a two ounce bottle of soft or distilled water, and when dissolved it is ready for use. It is best used by pouring it into a shallow dish, and in this floats the paper you want the picture on. Wove paper is the best, and when saturated evenly it should be dried in the dark, and should be of a bright yellow colour; on this place the fronds, and under the paper a piece of soft black cloth and some sheets of paper; put the whole between two sheets of glass, all of which should be of the same size; the whole should then be pegged together. Expose the glass with the fronds so that the sun falls on it as nearly perpendicularly as possible. After being exposed from half-an-hour to an hour, the paper will be found a dark brown colour, but yellow where the fronds lay. The paper should be then washed in clean water to extract the potash where the fronds were, when the photograph will appear white on a brown ground; but if prussiate of potash be used in the same way, a dark blue ground will be obtained. Another way of making pictures with fern fronds, I think, is one of the best; I have seen groups of fronds arranged and made into pictures in the following manner. Get the paper the size you want for the picture, arrange the

fronds as you wish, pinning the whole of them down—which is best done by having a board underneath the paper; every pinna and pinnule should be pinned so as not to move. The fronds having been previously pressed and dried, then with a solution of Indian ink, throw a fine spray over the intended picture by dipping the brush into the ink and drawing a coarse comb across the brush; continue to throw the spray until you have the picture dark enough, when the fronds may be taken off, and will leave their impression in white, but this is best toned down in the same way, according to fancy or taste.

Authorities for the Generic Names.

BERNHART, an Italian Botanist.

BORY, ST. VINCENT, a French Traveller and Botanist.

BROGNIART, a French Botanist.

BROWN, R., an English Botanist and Traveller, who travelled a great deal in New Holland, and visited some of the first Botanists of Europe.

CAVANILLES, a Spanish Botanist, and author of several books on plants.

DESFONTAINES, a French Traveller and Botanist in Algiers.

DESVAUX, a French Botanist.

DRYANDER, a Swedish Botanist, and Librarian to Sir Joseph Banks.

FEE, a Professor of Botany at Strasburgh.

HOFFMAN, a German Botanical author.

HOOKE, a family of distinguished Botanists, both past and present.

HUMBOLDT AND BONPLAND, Botanists and Travellers in America.

KAULFUSS, a German writer on Ferns.

KUNZE, a German writer on minute cryptogamic plants.

LAGASCA, a Spanish Botanist.

LINK, a Prussian Botanist.

LINNÆUS, the great Swedish Botanist and Naturalist, who lived between the years 1707 and 1778.

MICHAUX, a French Botanist, who wrote on the plants of North America.

MOORE, T., one of the principal authorities on Ferns of the present day, and Curator of the Chelsea Botanic Gardens.

PRESL, a German systematical Botanist.

RADDI, an Italian cryptogamic Botanist.

SCHREBER, a Botanist in Germany.

SWARTZ, a Swedish Botanist, who after visiting the West Indies, published an account of the native plants.

SMITH, J., a great authority on Ferns, and late Curator of the Kew Gardens.

SMITH, SIR J. E., the Founder of the Linnæan Society.

SPRENGEL, a German Botanist and Antiquarian.

WILLDENOW, a Prussian Botanical writer.



SPECIES AND VARIETIES.

ACROPHORUS.

Acrophorus, *Presl*, from *akros*, top, and *phero*, to bear, a genus closely related to *Davallia*, and has small creeping rhizomes; the species mentioned here, *affinis* and *hispidus*, are nice plants for shades or cases, and last a long time when cut for bouquets, &c.; they grow well in fibrous peat, and sand, and are best propagated by dividing the plants.

A. affinis, *Leucostegia affinis*. This grows nine to fifteen inches high, the fronds tripinnatifid, and triangular in form, the pinnae overlapping each other, and of very dark green colour; it has a small rhizome which grows on the surface, and is clothed with scales. A stove fern from Borneo.

A. chærophylla. See *Leucostegia chærophylla*.

A. hemiptera. See *Davallia hemiptera*.

A. hispidus, *Davallia hispidus*, *D. Nova Zealandica*, a finely divided species, with the fronds of a very dark shining green colour, and from nine to twelve inches high, of a very stiff habit, and tripinnate. A greenhouse species from New Zealand.

A. immersus. See *Leucostegia immersus*.

A. pulchra. See *Leucostegia pulchra*.

ACROSTICHUM.

Acrostichum, *Linnaeus*, of doubtful derivation, but supposed to refer to the beginning of a verse, on account of the back of the fronds being lined so as to

resemble in some degree the commencement of lines in poetry. A genus brought down by recent authors to only one species, which is a giant in growth, and a water loving plant; it is best grown in a mixture of fibrous peat, loam and sand, with plenty of moisture; it is best propagated by division when obtainable. The following were formerly included in this genus, *Actinopteris*, *Drynaria*, *Hymenodium*, *Elaphoglossum*, *Platynerium*, *Gymnopteris*, *Rhipidopteris*, *Stenochlœna*, *Stenosema*, and some of the *Polybotrya*.

A. aureum, *A. fraxinifolium*, *A. marginatum*, *Chrysodium aureum*. This forms an erect stem with the fertile fronds pinnate, and erect in habit; the lower part of the fronds barren; the barren fronds grow six feet long, and drooping, of thin texture, and light green colour; it is a stove species, and will grow best if the pot is stood in water, and will require plenty of heat to grow it to perfection. A stove species from the West Indies.

A. fraxinifolium. See *A. aureum*.

A. marginatum. See *A. aureum*.

ACTINOPTERIS.

Actinopteris, *Link*, From *aktin* rayed, and *pteris*, a fern, in allusion to the radiated fronds. A genus with only one species, and that is placed by some authors as an *Acrostichum*; it is best grown in peat and sand, and sandstone added in small lumps. It is best propagated by dividing the plants.

A. radiata. A handsome species, and somewhat rare, from three to six inches high, reminding one of a miniature fan palm; the leaves are all rayed from the centre, and of a beautiful light green colour. One of

the loveliest of ferns, requiring a stove temperature. Native of Ceylon, and other places.

Actinostachys. See *Schizea*.

Adiantopsis. See *Cheilanthes*.

ADIANTUM.

Adiantum, *Linncæus*, the name of which is derived from *adiantos*, dry, through the water not taking hold of the fronds when immersed; the majority of the species are natives of the tropics, and several are found in temperate climates, while a few are quite hardy. This genus has the peculiarity of having in all the species, black or very dark chestnut coloured stipes; the sori are placed on the margin of the pinnules. All the species grow well in a mixture of peat, loam, and sand, and nearly all are well worth the care they require bestowed upon them. All are evergreen, with the exception of the following, viz.: *lunulatum*, *palmatum*, *pedatum*, *sessilifolium*, and *speciosum*, but even in that deciduous state they must not be allowed to become dry. Owing to the neglect of this precaution they have been thought difficult to grow.

A. aculeatum. See *Davallia aculeata*.

A. Æmulum. A greenhouse fern, growing about eighteen inches long, of rather a drooping habit, and of a bluish green colour, the pinnules of an oblong form, and usually three lobed. Native of Brazil.

A. Æthiopica. This grows about eighteen inches high, with fronds of a light green colour, and slightly drooping; the pinnules cuneate, and thickly set on the rachides, of a thin texture, and very compact habit. A greenhouse plant from the Cape of Good Hope.

A. affine, *A. Cunninghami*, *A. diaphanum*. A pretty

fern growing twelve to fifteen inches high, with the fronds bipinnate, sometimes tripinnate and glabrous, it resembles *formosum*, but is much smaller. A greenhouse fern, from New Zealand.

A. alternifolium. See *Diplazium alternifolium*.

A. amabile, *A. Mooreanum*. A stove fern from twelve to eighteen inches high, the fronds gracefully recurved; the pinnules rather deeply lobed, and of a light green colour; the young fronds are slightly scented. Native of Brazil.

A. Americannum. See *A. pedatum*.

A. ancitense, a new species of Mr. Bull's introduction, said to be very distinct, and of very free growth, with the form of *A. hispidulum* and well worth growing, it is bipinnately divided into small segments, of a cuneate obovate form, and serrulated.

A. arcuatum. See *A. lunulatum*.

A. asarifolium, *A. reniforme asarifolium*. This has simple fronds growing six to nine inches high, kidney shaped, four to six inches wide, and of a shining green colour; it appears to be a large variety of *reniforme*, a stove fern, from the Isle of Bourbon.

A. agsimile, *A. trigonum*. This has tripinnate fronds, growing twelve to fifteen inches high, and small roundish pinnules, of a light green colour; it is a fine basket plant, as it produces plants at the ends of the creeping rhizomes, as they grow through the basket. A greenhouse fern, from New Zealand and Australia.

A. Banseii. This has bipinnate, or tripinnate fronds, eighteen inches to two feet high, and of graceful outline; the pinnule large, somewhat variable in form, and slightly drooping. Of garden origin, supposed to be a hybrid, between *trapeziforme* and *decorum*. A stove fern, and very distinct from any other.

A. bellum. A pretty dwarf little fern, three to six inches high, bipinnate, of an ovate, lanceolate form, and very slender; the pinnules cuneate, and irregular, and of a dense tufted habit. A stove fern, from Bermuda.

A. Brasilensis, *A. intermedium*. *A. triangulatum*. A stove fern with bipinnate fronds, growing about a foot high, of a lightish green colour, and medium sized pinnules; the stipes are slightly hairy. Native of Brazil.

A. cardiochlæna, *A. Matthewsianum*, *A. polyphllum*. This is rather a tall growing plant with the fronds, from two to three feet long, gracefully arching, and many times divided at the base; the top of the frond only pinnate, of a light green colour, and slightly coriaceous in texture. A stove fern, from South America.

A. caudatum, *A. hirsutum*. A pretty fern growing about a foot long, having pinnate fronds of a pendulous habit, and dull green colour; it produces young plants at the apex of the fronds. A stove fern, from the East Indies.

A. Chilense. A pretty greenhouse fern, growing about a foot high, of triangular form, and beautiful glaucous green colour; the pinnules roundish, crenated, and rather firm texture. Native of Chili.

A. ciliatum, *A. Edgeworthi*. This is a pendulous fern, in the way of *caudatum*, but it is much longer, and broader, growing two feet long; the pinnules cut at the edges, pubescent, and of a soft green colour, it produces young plants on the ends of the fronds. A stove fern.

A. colpodes. A greenhouse fern, with fronds from twelve to eighteen inches long, of a pleasing green

colour; the pinnules sessile and cuneate in form. From the Ecuador.

A. concinnum. This grows from one to two feet long, of an arched habit, tripinnate, and light green colour, it may be readily distinguished by the sessile pinnules, where the pinnæ joins the main stem, and generally thickly studded with sori. A stove fern, from South America, and other places.

A. c. Flemingii. An erect form of *concinnum*, growing eighteen inches high, of a pale green colour, the fronds when young are of a rosy brown. A greenhouse fern, of Garden Origin.

A. c. latum. This is much larger than the species, the fronds are erect, two to three feet high; the pinnules three times the size of *concinnum*, of a dark green colour. A stove fern, Native of Muna.

A. cristatum, *A. denticulatum*. A pretty stove fern, from one to two feet high, of triangular form, tripinnate, and stiff habit, of a dark green colour, and crested pinnules. A Native of the West Indies.

A. Cubense. This grows from twelve to eighteen inches high, usually with two pairs of pinnæ, and an ultimate one, which is much the longest; the pinnules are semi-rhomboidal, and an intense green colour; the large sori placed on the edges gives them a deeply toothed appearance. A stove fern, from the West Indian Islands.

A. cultratum, *A. pentadactylon*. A stove plant, from two to three feet high; it somewhat resembles *trapeziforme*, but the pinnæ is much longer, and the indusium scarlet. Native of Tropical America.

A. cuneatum. This is one of the commonest of the maiden hair ferns, yet none the less beautiful; it grows from twelve to eighteen inches high, the fronds

four times divided ; the pinnules wedge-shaped, and of a bright green colour. A greenhouse fern, from Brazil.

A. cuneatum dissectum. An elegant form of the species, with the pinnules much smaller. A greenhouse fern, of Garden Origin.

A. c. multifidum. A variety differing from the normal form by the extremities terminating in numerous points. Of Garden origin.

A. c. mundulum. See *A. mundulum*.

A. Cunninghami. See *A. affine*.

A. curvatum, a grand fern, from eighteen to thirty inches high ; the fronds tripinnate, the pinnules curved backward, glabrous, and of a light green colour. A stove fern, from Brazil.

A. decorum. A pretty species which will do well in a warm greenhouse, it grows from twelve to eighteen inches high, of a stiffish habit ; the pinnules cuneate, and notched into roundish lobes, and of a dark green colour. Native of Peru.

A. denticulatum. See *A. cristatum*.

A. diaphanum. See *A. affine*.

A. dolosum. See *A. Wilsoni*.

A. Edgeworthi. See *A. ciliatum*.

A. excisum. This grows from twelve to eighteen inches long ; the fronds three or four times divided, of graceful arching habit ; the pinnules deeply cut, and closely set, of a cuneate form, the colour a deep green. A greenhouse plant. Native of Chili.

A. c. Leyii. A variety of the preceding, scarcely ever exceeding nine inches in height, and densely crested in a very interesting manner, and of a pleasing bright green colour. Of Garden Origin.

A. c. multifidum. In this variety the apex both of the pinnæ, and the top of the frond, are divided into

several branches, and then again divided. A greenhouse plant of Garden Origin.

A. farleyense. This is, without doubt, the prettiest of all the *Adiantums*; it has drooping fronds, from two to three feet long, and three or four times divided, and of a pleasing light green colour, the pinnules lobed, and beautifully fringed, of dense growth, and generally sterile; it originated at Farley Hill, Barbadoes. A stove fern.

A. farleyense alcicorne. A curious and interesting variety of the preceding, having the pinnules irregularly cut and divided into various forms, many having the appearance of stags' horns, hence the name *alcicorne*, of Garden Origin.

A. Feei, *A. flexuosum*. A stove fern, of rather ascendent habit, from twelve to eighteen inches high; the stipes clothed, as well as the rachis, with rusty like hairs; the fronds tripinnate, of a dull green colour, and the pinnules of a hard texture. Native of Mexico.

A. flabellifolium. A neat growing stove species, having pedate, or rather fan-shaped fronds, of a very dark green colour; the pinnules small, and of an oblong ovate form. Native of Jamaica.

A. Flemingii. See *A. concinnum Flemingii*.

A. flexuosum. See *A. Feei*.

A. formosum. A strong-growing greenhouse species, with the fronds from one to three feet high, and four times divided, with smallish pinnæ, of a darkish green colour; the stipes and rachis hairy. Native of New Holland and New Zealand.

A. fovearum. See *A. prioniphyllum*.

A. Fovianum. This grows from twelve to eighteen inches long, with the fertile fronds erect, and the

sterile ones rather drooping; the fronds when young have a reddish brown appearance. A stove fern, from the West Indies.

A. fulvum. This is somewhat similar to *formosum*, but with larger pinnules; the fronds when young are of a delicate pink colour, which changes with age, to lightish green. A greenhouse fern, from New Zealand.

A. Funckii. A stove fern in growth similar to *A. Sanctæ Catherinæ*, and the drooping habit, of *Peruvianum*; it appears to be intermediate between the two species. Of Garden Origin.

A. Ghiesbreghtii. *A. scutum*. This grows from eighteen to thirty inches long, and tri-pinnate, rather ovate in form; it somewhat resembles *A. tenerum*, but the pinnules are more thickly set on the rachides, it is slightly crenated at the margins, and bright green colour. A stove fern, of Garden Origin.

A. glaucophyllum. A greenhouse fern, with the fronds many times divided, and growing about a foot high, of a pleasing green colour above, and glaucous underneath; the pinnules vary in form, while some are cuneate, and others spatulate. Native of Mexico.

A. gracillimum. This is a very finely divided variety of *A. cuneatum*; it grows from one to two feet high, the fronds much branched, the pinnules are very minute, which gives it a graceful appearance. A greenhouse fern, of Garden Origin.

A. Hendersonii. A strong-growing species, from two to three feet long, of a graceful arching habit; the stipes are long, about half the entire length, the upper part bipinnate, with a terminal pinnule much prolonged; the pinnules are sessile, of an oblong form; the margin irregularly notched, the young fronds are

of a bronzy crimson colour, which they retain a long time, when mature they are dark green. A stove fern, from Mexico.

A. Henslovianum. See *A. sessilifolium*.

A. hexagonum. See *Pteris heterophylla*.

A. hirsutum. See *A. caudatum*.

A. hispidulum. See *A. pubescens*.

A. intermedium. See *A. Brasilense*.

A. Lathamii. A fine growing plant of vigorous habit and grand appearance. It is seedling from *A. scutum*, which the pinnules resemble, being of the same form and colour, but much larger; it somewhat resembles *A. farleyense* in its drooping habit. A stove plant, of Garden origin.

A. Lawsonianum. This appears to be a finely cut form of *A. cuneatum*, a pretty plant, for a greenhouse temperature, of Garden Origin.

A. Lindenii. A strong-growing species, having, tri-pinnate fronds, and rather oblong, sickle-shaped pinnules, of deep rich green colour. A stove fern from the Amazon.

A. Luddimannianum. A peculiar growing plant with the pinnules crested or agglomerated at the extremities of the stipes, and rachides, and also crisped, and curled, of erect growth, eight to twelve inches high, with smooth, slender stipes of a deep crimson, changing with age to ebony black. A greenhouse variety, of Garden Origin.

A. lunulatum, A. arcuatum. A very pretty stove fern, with pinnate fronds, drooping, and produces young plants on the ends of the fronds; the pinnæ are alternate, crescent-shaped, and light green in colour. A deciduous stove fern, from the East Indies.

A. macrophyllum. This grows from twelve to

eighteen inches high, with erect pinnate fronds, of a light green colour; the pinnules are large, and rather coriaceous; the young fronds of a beautiful red colour. A stove fern, from Jamaica, and other places.

A. Matthewsianum, see *A. Cardiochlæna*.

A. monochlamys. A very remarkable and small-growing species, the principal feature is the solitary sorus on each pinnule, it is a greenhouse species, and Native of Japan.

A. monsortatum. See *A. pulverulentum*.

A. Mooreanum, see *A. Amabile*.

A. Moritzianum. A large-growing variety of *Capilus veneris*, from twelve to eighteen inches high, a very desirable variety, from South America.

A. Mundulum, *A. Cuneatum Mundulum*. A pretty little plant, growing about six inches high, and about three inches broad, with numerous small pinnules of a wedge-shaped form; the terminal one large, and three lobed. A greenhouse fern, of Garden Origin.

A. Neoguincense. This is similar to *A. Æthiopicum*, but different in many respects, obviously in the sori, which are rounded, and entirely sunk; the fronds are about two feet long; the stipes chestnut coloured, and covered with a glaucous bloom; the pinnules of a dark green colour, and membranous textures. A stove fern, from New Guinea.

A. Owenii. An hybrid supposed to be a cross between *A. amabile* and *cuneatum*. It has compound fronds of a stiff habit, and triangular outline, the fertile fronds have small pinnae of the *cuneatum* form, and the others, much of the character of *amabile*. A greenhouse variety, of Garden Origin.

A. pallens. See *Ochropteris pallens*.

A. palmatum. This grows from two to three feet in height, the fronds of an elongated form, a noticeable feature in it, is the flexuous or zigzag character of the rachis, the pinnules are large from one to one and three quarters inches broad, distant and very distinctly stalked and semi-circular in outline, and deeply cut, with three to five lobes. A warm greenhouse species from Peru.

A. paradoxicum. See *Platyloma Brownii*.

A. pedatum, *A. Americanum*. A pretty hardy fern, growing about a foot high, with the fronds resembling in outline a bird's foot, the divisions from five to ten in number; the stipes a dark chestnut brown colour. Native of North America.

A. pentadactylon. See *A. cultratum*.

A. Peruviana. A fine stove species, with fronds two to three feet long, of a fine arching form; the stipes half the length, the pinnules of an ovate acuminate form, the fronds bi-pinnately divided. Native of Peru.

A. polyphyllum, see *A. cardiochlana*.

A. princeps. A beautiful arching species, growing from two to three feet long, the fronds broadest at the base, the lower pinnae about a foot long, and bi-pinnate, which make the frond quadri-pinnate, the pinnules large, the upper corner obliquely overlying the rachis, the terminal pinnae larger than the rest. A stove fern, from New Grenade.

A. prionophyllum, *A. forcarum*. *A. tetraphyllum*.

A. varium. An erect tall-growing species, having spreading fronds of a dull green colour, divided into three to five pinnae with the middle one the longest; when young of a glossy crimson colour, and medium sized pinnules. A stove plant, from South America.

A. pteriodes. See *Cheilanthes pteroides*.

A. pubescens, *A. hispidulum*. A pretty greenhouse species, growing from twelve to eighteen inches high, the pinnæ pedate of a dark green colour; the fronds when young are of a crimson tint, the whole clothed with a hairy-like pubescence. Native of New Holland.

A. pulverulentum, *A. monsortatum*. A stove species, having bi-pinnate fronds, about eighteen inches high, of a rich glossy green colour; the stipes, and rachis, covered with close rusty-like hairs. Native of Tropical America.

A. radiatum, See *Cheilanthes radiatum*.

A. reniforme. A pretty little greenhouse species, with simple fronds, growing six or eight inches high, and kidney shape, about three inches broad, and of a bright shining green colour. Native of Madeira, and the Azores.

A. reniforme asarifolium. See *A. asarifolium*.

A. reniforme Parishii. This variety has the fronds articulated with the stipes. Introduced from Moulmein.

A. rhomboideum. See *A. trapeziforme*.

A. rubellum. A very ornamental stove species, growing from six to twelve inches high, bi-pinnate, and triangular in outline, the pinnules nearly euneate, and cut at the edges; in its young state it is a beautiful crimson, changing with age to a light green, slightly tinged with pink. Native of Peru.

A. Sanctæ Catherinæ. This grows from one to two feet high, and several times divided; the pinnules of an oblique rhomboid form, broadly toothed, and of a light green colour. A stove species, from Brazil.

A. scabrum. A pretty little species, growing about nine inches high, of very compact habit; the

pinnules roundish, and covered on both sides with a light silvery powder. A stove species, from Chili.

A. scutum. See *A. Ghiesbreghtii*.

A. Seemanii. A noble and very distinct species, with fronds two feet long, and comparatively slender glossy black stipes, and bearing at the top four to eight pinnules, which are attached by a slender petiole an inch long; the pinnules of a broad, ovate acuminate unequal-sided form; the fronds when young are simple and of a reddish tint. A stove fern, from Central America.

A. sessilifolium, A. Henslovianum. This has tri-pinnate fronds, growing about two feet long, triangular in outline, of an arching habit; the pinnules crisped on the upper margin, and light green colour. A stove species, from Peru.

A. setulosum. A pretty greenhouse fern, with fronds from nine to twelve inches high, and branched, the pinnules closely and regularly set on the rachides, and crimped at the edges, the upper surface slightly clothed with black hairs. Native of New Zealand.

A. speciosum. A stove species, growing from two to three feet high, with large tri-pinnate fronds, of a semi-scandant habit, the pinnules wedge-shaped, and covered on the surface with dense short hairs; and has the peculiarity of being deciduous. Native of Peru, and Brazil.

A. sulphureum. A pretty little greenhouse species, growing from six to twelve inches high, the fronds, bi-pinnate; the pinnules when barren are roundish, the fertile ones slightly notched, and covered on the under side with a golden powder. Native of Chili.

A. tenerum. A stove species, growing about three feet high, tri-pinnate, the pinnules are of the *capillus*

veneris form, and thinnish texture, of a dark green colour; the stipes are of a polished black. Nature of West Indies, and Tropical America.

A. tetraphyllum. See *A. prioniphyllum*.

A. tetraphyllum gracilé. A small variety of *A. prioniphyllum*, of moderate height, and very remarkable for the beautiful reddish tint assumed by the fronds when first developed. A stove variety, from Colombia.

A. tinctum. A pretty stove species, with bi-pinnate fronds, from twelve to eighteen inches high, the young fronds are of a delicate purplish rose colour, when mature of a light green. Native of Pern.

A. trapeziforme, *A. rhomboideum*. A tall-growing species, from two to three feet high, of a bright green colour; the pinnules large and of a trapezium form, hence the name; the spore cases are black when mature. Native of the West Indies.

A. trigonium. See *A. assimile*.

A. varium. See *A. prioniphyllum*, and *A. villosum*.

A. Veitchianum. A very elegant species, of symmetrical growth, growing about two feet high, and tri-pinnate, the fronds when young of a red colour, changing with age to a light green. A stove species, from Peru.

A. vennustum. A nearly hardy species, growing from nine to twelve inches high, and producing bi-pinnate fronds, of a light pleasing green colour and of a triangular outline; the pinnules of a roundish oblong shape, and thin texture. Native of Afghanistan.

A. velutinm. A fine, bold-growing species, with very large fronds; the pinnules somewhat falcate and acuminate; the stipes, as well as the rachis, are densely clothed with dull brown silky scales. A stove species, Native of Columbia.

A. villosum, *A. varium*. This has bi-pinnate fronds, about eighteen inches high, of a bright green colour; the sori placed on the margin of the pinnules in a continuous line; and has the rachis clothed with a pubescence. A stove species, from Tropical America.

A. Williamsii. This has a somewhat similar appearance to *A. Chilense*, but is quite distinct; it grows from twelve to eighteen inches high, of a spreading and drooping habit; the surface undulated, the pinnules are semi-circular with a straight base and equal sides, of a light green colour. The base of the stipes is covered with a golden powder, which is more or less scattered over the fronds. A greenhouse fern, from Peru.

A. Wilsonii, *A. dolosum*. A stove fern, having pinnate fronds, about a foot high; the pinnæ large and ovate, of a coriaceous texture, and dark shining green colour; the sori placed in a continuous line around the margin, and nearly to the apex. Native of Jamaica.

A. Zahnii. A robust-growing plant, with pinnate fronds, of leathery texture, and dark green colour; this apparently is a large form of the preceding species, and requires a stove temperature.

AGLAOMORPHA.

Aglaomorpha, *Schott*, from *aglaos*, beautiful, and *morpha*, form; there is only one species that I am acquainted with, which greatly resembles some of the species of *Polypodiums*, the fronds are dissimilar, the barren ones broad and pinnatifid, the fertile ones nearly pinnate, the segments long and contracted, it grows well in a mixture of fibrous peat and sand, and is well adapted for growing in baskets.

A. Meyeriana, *Psygium elegans*. This grows from one to two feet high, with barren and fertile fronds; the barren ones pinnatifidely divided into broad lanceolate segments, while those of the fertile ones are very narrow, and toothed into roundish lobes, with a sorus in the centre of each lobe. A stove species, from the Isle of Luzon.

Aleuritopteris. See some of the species of *Cheilanthes*.

Allantodia. See some of the species of *Aspleniums*.

Allosorus calomelanos. See *Platyloma calomelanos*, and *Cassebeera hastata*.

A. cordatus. See *Platyloma cordata*.

A. flexuosus. See *Platyloma flexuosus*.

A. Karwinskii. See *Llavea cordifolia*.

ALSOPHILA.

Alsophila, R. Brown, from *alsos*, grove, and *phileo*, to love, in reference to the habitat of the plant. A genus of tree ferns which appears to be allied to *Cyathea*, but the most distinct feature is the naked sori and its bitri-pinnate fronds. They are of arborescent growth, and are represented in both temperate and tropical climates, but do not reach any part of Europe. Those from the temperate regions, as a rule, have the largest stems. *A. Australis* is an old inhabitant of our gardens, being introduced about the year 1823, it has a variety *A. Williamsii* of a very pendulous habit, unlike most other tree ferns assumes its drooping habit in its young state; *A. excelsa*, in its native haunts has been found eighty feet high. Some of the tropical species have a very graceful appearance, on account of their slender stems and large crowns of green fronds which they

produce. All the species grow well, in a soil as recommended for tree ferns (see chapter on tree ferns), and also with the same treatment.

A. aculeatum. See *A. ferax*.

A. armata. A fine slender stem species, having tri-pinnate fronds, from three to six feet long, of a light green colour, and leathery texture; sparingly clothed on the underside with foxy-coloured, spreading hairs; the stipes are armed with short light-coloured spines, and clothed, as well as the crown, with white, and foxy-coloured scales. A stove fern, from South America.

A. articulata. This has a stem growing about five feet high, with fronds six to eight feet long, and bi-pinnately divided; and jointed, or articulated; the rachis and stipes are armed with spines, and clothed with chaffy scales. A stove species, from Jamaica.

A. aspera. A stove fern, growing to the height of twenty feet, or even more, with broad bi-pinnate fronds, of a leathery texture; the pinnae frequently twenty to thirty inches long, and of a rich green colour, the base of the stipes are armed with short spines, and the main and partial rachis are clothed with long, rough hairs. Native of West Indies.

A. atrovirens. See *A. radens*.

A. australis. A greenhouse fern, which in its native haunts reaches the height of thirty feet, and from two to three feet in circumference; it has bi-pinnate fronds and deeply pinnatifid pinnules, of deep green colour above and lighter underneath, the base of the old fronds is armed with short prickles, the stipes and crown are clothed with chaffy scales of a dark brown chestnut colour. Native of South Australia, and Tasmania.

A. australis *Williamsii*. A weeping variety of *australis*, and assumes a pendulous form, even in its young state. Of Garden Origin.

A. Beyrichiana, *Amphicosmia Beyrichiana*, *Cyathea Beyrichiana*. A stove species, with a slender stem, and bearing a crown of long arching fronds, bi-pinnate, and darkish green on the upper side, and lighter beneath; the stipes are furnished with spines, and clothed, like the crown, with long chaffy scales, of a brown cinnamon colour. Native of Brazil.

A. Burbidgeii. A stove fern having tri-pinnate fronds, of a moderate firm texture, and lighter green, on the under side; strongly ciliated on the midrib of the pinnules; both surfaces and rachis nearly smooth, the pinnules are sessile; lanceolate in form, from two to two and half inches long. Native of Borneo.

A. capensis *Cyathea capensis*, *C. riparia*, *Polypodium capensis*. A greenhouse species, with stems from six to nine feet high, or more, slender, and black looking, bearing tri-pinnate fronds, from three to four feet long, of a deep green colour; the edges of the segments serrated, the fronds ovate lanceolate in form and around the base of the stipes produce small hair-like fronds, which has been mistaken for another fern. Native of the Cape of Good Hope.

A. contaminans. See *A. glauca*.

A. Cooperii. A form of *excelsa*, but does not grow so rapidly, and has a more slender stem; the crown and stipes densely clothed with dark brown hairs and scales. From New South Wales, and other places.

A. excelsa. A greenhouse fern, which in its native haunts reaches to the height of seventy or eighty

feet, with the stem scarcely a foot in diameter, and producing long, spreading fronds, from seven to twelve feet long, and bi-pinnate, the crown of the plant with the stipes the entire length, are clothed with large broad light-coloured chaffy scales. Native of Norfolk Island.

A. ferox, *A. aculeatum*, *Polypodium aculeatum*. A strong-growing stove species, with stems from three to ten feet high, or more, with ovate, lanceolate fronds, and bi-pinnate, the pinnules sessile, deeply pinnatifid, and of a dark green colour; it may be known at once by the prickles on both stipes and rachis. Native of West Indies.

A. fumata. See *A. infesta*.

A. gigantea. This is said to grow in its native haunts fifty feet high, with bitri-pinnate fronds, of a bright green colour, and thin texture; the pinnæ and pinnules vary on different plants. A stove fern rare in cultivation, from Nepal, Java, Ceylon, and other places.

A. glauca, *A. contaminans*, *Cnoophora glauca*. This is a strong-growing species, and grows in its native haunts fifty to sixty feet high, it bears a fine crown of arching fronds, from six to twelve feet long, and bi-pinnate; the pinnules deeply pinnatifid, of a coriaceous texture, the upper part of a bright green colour, and the underside glaucous; the stipes and main rachis are covered with short prickles, the crown of the plants, and stipes are clothed with long, large, chaffy white scales. Native of the Phillipines, Java, and Penang.

A. grandifolia. See *Hemitelia grandifolia*.

A. horrida. See *Hemitelia horrida*.

A. Imrayana. See *Oyathia Imrayana*.

A. infesta, *A. fumata*. A stove species with bi-pinnate fronds, and broad pinnatifid pinnules, of a thin texture, and deep green colour; the base of the stipes armed, with sharp spines, and the crown of the plant clothed with chaffy scales. Native of Brazil, and the West Indies.

A. Leichardiana, *A. Mc Arthurii*, *A. Mooreii*. A most graceful greenhouse species, with a very slender stem from ten to twenty feet high; the fronds beautifully arching, and bi-pinnate from five to ten feet long, and of a bright green colour; the stipes and the main rachis are armed with dark brown spines. Native of Queensland.

A. McArthurii. See *A. Leichardiana*.

A. Mooreii. See *A. Leichardiana*.

A. paleotata. This has a slender stem, bearing bi-pinnate fronds, with the pinnules serrated, of a deep green colour, and clothed on both surfaces with downy hairs; the stipes are prickly, and the rachis somewhat hairy. A stove fern from Brazil.

A. Phillipense. A stove fern with a small slender stem, producing fronds of a dense green colour, and gracefully arching; the young fronds of a bright glossy green. Native of Phillipines.

A. procera. A very ornamental stove species, having bi-pinnate fronds, and broad-toothed pinnules, of a dark shining green colour; the stipes prickly, and clothed with brown chaffy scales. Native of Brazil.

A. pruinatum, *Lophosoria pruinata* *L. glauca*, *Polypodium griseum*.

P. pruinatum. A singular-looking species, with stipes and fronds covered with soft woolly-looking hairs, which gives it the appearance of hoar frost, it is three, and, sometimes, four times divided; the pinnules

are deeply-toothed, the sori like the *Polypodium*. A warm greenhouse species, from Brazil.

A. Radens. *A. atrovirens*. A stove species, from Brazil, with fronds from six to eight feet long, and bi-pinnate, the pinnae from twelve to fifteen inches long, with oblong obtuse segments, of a bright green; the stipes of a very pale colour, and prickly.

A. speciosus. See *Hemitelia speciosa*.

A. Surinamensis. A slender-growing species, having bi-pinnate fronds and pinnatifid pinnules of a deep green colour; the stipes prickly, and the crown of the plant clothed with brown chaffy scales. A stove fern, from Guiana and Martinique.

A. Tanitis, *Trichopteris excelsa*. A handsome little tree fern with bi-pinnate fronds, three to six feet long, and glabrous, with lanceolate pinnules, about two inches long, and half an inch broad, leathery in texture, and bright dark green colour; the stipes and crown densely clothed with large mahogany-coloured scales. A stove fern, from Brazil.

A. Van Geertii. A slender-stem species, with the fronds of a beautiful green colour, and are two or three times divided; the base of the stipes armed with short spines. A green-house fern.

A. villosa. The stem of this does not grow very high, the fronds from six to seven feet long, and tri-pinnate; the whole plant is covered with long shaggy hair-like processes. A stove species, from South America.

Amphicosmia Beyrichiana. See *Alsophila*, *Beyrichiana*.

Anesium. See *Asplenium*.

Amblia. See *Cyrtomium*.

Anapeltis. See *Gonioplebium*, *Pleopeltis*, and *Polypodium*.

Anchistea Virginica. See *Woodwardia Virginica*.

ANEMIA.

Anemia, Swartz. Named in allusion to the naked inflorescence ; the fertile segments so much contracted, so as to have the appearance of flower spikes, rising as they do from the base of the fronds, and somewhat resembles the fertile segments of the *Osmundas* ; the species are all of a dwarf growth and compact habit ; and all, without an exception, native of the tropics. *A. hirsuta*, being one of the earliest introductions to this country, about the year 1794, they all succeed well in a mixture of loam, peat, and sand, and are readily increased by dividing the plants, and also by spores.

A. adiantifolia. A stove species, growing from twelve to fifteen inches high ; the sterile fronds bi-pinnate, and triangular in form ; the fertile ones rising from the base of the others, and usually in pairs, and growing about six inches from the base. Native of Jamaica and other places.

A. cheilanthoides, *A. tomentosa*, *A. Raddiana*, *A. ferruginea*, *Osmunda tomentosa*. The sterile fronds of this species grow from six to twelve inches high, sometimes tri-pinnatifid, of a dark green colour ; the fertile parts tri-partite, about three inches high, and produced in pairs, of a reddish brown colour ; the stipes and rachis densely clothed with short white hairs. A stove fern, from Tropical America.

A. collina, *A. hirta*. A very distinct species, with pinnate fronds, nine to twelve inches high, with entire obtuse pinnæ, of a dull green colour and tomentose ; the fertile segments about nine inches high, and pro-

duced in pairs ; the rachis clothed with rusty brown hairs. A stove fern, from Brazil.

A. Dregeana. A South African species, and requires a stove temperature ; the sterile fronds are pinnated, with unequal-sided pinnae, of a dark green colour ; the rachis clothed with short woolly-like hairs, the fertile segments are produced in pairs.

A. ferruginea. See *A. cheilanthoidis*.

A. fraxinifolia. See *Anemidictyon phyllitidis*.

A. hirsuta. This produces fronds from nine to twelve inches long and pinnate, the pinnae about an inch long, sessile, and toothed, the fertile segments growing about three inches long. A stove species, from Brazil.

A. hirta. See *A. collina*.

A. mandiocana. A fine distinct species, with pinnate fronds, and acuminate, the pinnae about an inch and half long, entire, and somewhat auriculate ; the fertile segments in pairs, and are about six inches in height ; the rachis densely clothed with long reddish hairs. A stove species, from Brazil.

A. phyllitidis. See *Anemidictyon phyllitidis*.

A. Raddiana. See *A. Cheilanthoides*.

A. tomentosa. See *A. cheilanthoides*.

ANEMIDICTYON.

Anemidictyon, named by *Smith* from *aneimon*, naked, and *dictyon*, a net, referring to the reticulated veins ; this is allied to *Anemia*, but they are stronger growing, and different in the venation. There is only one species in cultivation and that has several varieties, *tessellata*, which is of recent introduction, is a very ornamental and desirable variety. All of the varieties are natives of Tropical America, and require

stove temperature; the soil they do well in is a mixture of two parts loam, and one of peat, with sand enough to make it open.

A. *Phyllitidis*, *Anemia fraxinifolia*, *Anemia Phyllitidis*, *Osmunda Phyllitidis*. A stove species from two to three feet high, the sterile fronds pinnate; the pinnæ entire, about four inches long, and one wide, and bearing about ten pairs and a terminal one; the fertile ones grow from the base of the sterile fronds, and about six inches in length. Native of Tropical America.

A. *Phyllitidis fraxinifolium*. This does not grow more than eighteen inches high, with the sterile fronds pinnate, the pinnæ entire, and of an ovate form, about two inches long and one inch broad, and rather closely set, usually bearing nine pairs of pinnæ, and a terminal one. A stove variety, from Tropical America.

A. *Phyllitidis longifolium*. This variety grows from one to two feet high; the sterile fronds pinnate, the pinnæ entire, from two to three inches long, narrow, and sharply acuminate; the fertile segments in this variety are usually three, while the species are only two. A stove variety, from Brazil.

A. *Phyllitidis tessellata*. The sterile fronds of this variety are pinnate, the pinnæ oblong lanceolate, about three inches long, with a pale silvery centre, and reticulated with greyish lines, and margined with deep green bands. A stove variety, from Brazil.

ANETIUM.

Anetium. A small genus with only one species, and by some authors this is placed with the *Acrostichums*, but differs from that genus by the irregularity of the sori, it is easily propagated by dividing the

plants, and also from spores, they grow well in a mixture of peat and sand.

A. citrifolium, *Acrostichum citrifolium*, *Hemionitis citrifolium*. A stove species having simple fronds, about a foot long, of a lightish green colour, and borne on a creeping rhizome; with the sori irregularly scattered over the under surface of the fronds. Native of the West Indies.

ANGIOPTERIS.

Angiopteris, *Hoffman*, named from *aggrion*. A vessel, and *pteron*, a wing; they are generally called pseudo or bastard ferns, but related near enough to be enumerated here, they are easily recognised by their massive fronds, and gigantic rachises; the base of the stipes are clubbed, and from four to eight inches in circumference. They are best grown in strong loam, and sharp river sand, being natives generally of swamps they require abundance of water, so the pots should be well drained.

A. Assamica. A bi-pinnate species, not growing so large as some of the others, the fronds much smaller and the pinnae narrower. A stove plant, from Assam.

A. erecta, *A. longifolium*, *Danaa erecta*, *Polypodium erectum*. A giant stove species, having bi-pinnate fronds, from six to twelve feet high, and sometimes attain to the height of seventeen or eighteen feet, the pinnae of a bright shining green colour. Native of the East Indies, and Pacific Islands.

A. longifolia. See *A. erecta*.

A. pruinosa. This is similar to *erecta*, but the pinnae are larger, and glaucous on the under side. A stove species, from Java.

A. Teysmanniana. This is also bi-pinnate, and, in its native haunts, reaches between twenty and thirty feet long, with pinnæ of a vivid green. A stove species, from Java.

Anisogonium. See *Callipteris*.

Antigramma. See *Camptosorus rhizophyllus*.

ANTROPHYUM.

Antrophyum Kaulfuss from *antron* a cave, and *phio* to grow, in reference to the place of its growth. It is closely allied to *Hemionitis*; the sori are enclosed in the outer covering of the fronds. Propagated by spores and divisions.

A. lanceolatum, *Hemionitis lanceolatus*. A stove species, having simple fronds, from nine to twelve inches high, of a linear lanceolate form, and thickly set on a short rhizome; the sori enclosed in the outer covering of the fronds. Native of the West Indies.

Arthrobotrys articulata. See *Polybotrya Lowii*.

Arthropteris filipes. See *Polypodium tenellum*.

A. obliterata. See *Polybotrya Lowii*.

A. Atennellum. See *Polybotrya Lowii*.

ASPIDIUM.

Aspidium, *Swartz*, from *aspidion*, a little buckler, in reference to the form of the indusium; *Polystichum*, and *Nephrodium*, were formerly added to this genus, but separated by recent authors; the chief feature of this genus is the orbicular or reniform indusium, and netted veins; they are of easy growth, growing well in a mixture of peat, loam, and sand, propagated by spores and divisions.

A. ebenium. See *A. pica*.

A. cicutarium. See *Sagenia cicutaria*.

A. coadunatum. A strong-growing species, from two to four feet high, and rather pinnatifid fronds, of a light green colour, and broad pinnæ. A warm green-house species, from the East Indies.

A. Leuzeana. See *Phocnemia Leuzeana*.

A. Macrophyllum, Cardiochloa macrophyllum, A fine warm green-house species; the fronds from two to four feet long, and pinnate, the terminal pinnæ broad and decurrent; the pair at the base are auriculated on the lower margin, and the whole of a pale green colour. Native of Tropical America.

A. Pica, A. ebenum. A fine stove fern, growing about two feet high, and has broadish pinnatifid fronds more or less lobed, of a bright green colour; and with shining black ebony stipes; the sori large, of a dark brown, and very conspicuous. Native of Mauritius.

A. pteropus, A stove fern growing from one to two feet high, with the mature fronds deeply pinnatifid, and three or four pairs of dark green pinnæ; the fronds when young are simple. Native of Ceylon.

A. trifoliatum, Polypodium trifoliatum. This grows from one to two feet high, and trifoliate, the lower pinnæ lobed on both margins, and all deeply crenated; and of a bright green colour. A stove fern, from Tropical America.

ASPLENIUM.

Asplenium, Linnaeus. From *a*, not, and *splen*, spleen, referring to its supposed medicinal qualities. This is a very extensive genus, and widely distributed throughout the Tropics, as well as the temperate climates, and several are natives of our own country;

they vary in height from two or three inches to the same in feet, and from simple to tripinnate. The chief character of this genus is the sori placed on the upper side of the veins in narrow lines, running from the midrib of each pinnule, there are several of the species viviparous, and these are easily propagated by the multitudes, that are formed on the lobes of the pinnules. A great many of the species are well adapted for growing in Wardian cases, being of dwarf compact habit; among these also are some of the best plants for decorating rooms, as they stand the dust and house treatment well, and also of quick growth. They all do well in a mixture of peat, loam, and sand, and are, generally speaking, easily grown to perfection; they may be propagated by divisions, spores, and the young plants that are formed on the viviparous species. Several of the species were introduced about the year 1793 or 1794.

A. acuminatum. See *Diplazium Sylvaticum*.

A. alatum. A very pretty stove species, having pinnate fronds, and winged rachis, of symmetrical growth, and rather drooping habit; the pinnae lance-shaped, roundish on the lower side, and serrated, of a pale green colour. Native of Brazil.

A. alternans, A. Dalhousae. A pretty little frame fern, growing about six inches high, with pinnatifid fronds, and roundish lobes. Native of Northern India.

A. alternifolium. See *Diplazium alternifolium*.

A. ambignum. See *Callipteris Malabarica*.

A. angustatum. A pinnate species, with fronds from one to two feet long, the pinnae of a lanceolate form, and dark green; the stipes and rachis of a pale straw colour. A hardy fern, from North America.

A. apicidens. This appears to be closely allied to another late introduction, viz ; *A. Viillardii*, and also from the same part, the principal distinction is in the more obtuse venation, and shorter sori, the fronds are also pinnate, the caudex decumbent, and clothed with dark colour striped lanceolate scales. A stove species from the South Sea Islands.

A. appendiculatum. See *A. lurum*.

A. attenuatum. A green-house species growing on an erect caudex, about a foot or more long, with simple fronds, but sometimes pinnate at the base, of a fleshy texture, and dark green colour, and proliferous at the apex. Native of New South Wales.

A. auriculatum. This has pinnate fronds, from twelve to eighteen inches high, growing on an erect caudex, and gracefully arching, of a beautiful delicate light green colour. A green-house species.

A. auritum. A stove species with pinnate fronds, tapering to a point, from twelve to eighteen inches long, and of a lively green colour. Native of West Indies and other places.

A. Australasica. See *Thamnopteris Australasica*.

A. axillare, *Allantodia acillara*, *Polypodium acillaris*. A green-house species, with fronds from one to two feet long, of a lance-shape form, and lively green colour ; the pinnules very distant, of a narrow sickle form, and serrated, and has a thick creeping caudex. Native of Madeira.

A. Baptistii. This has bi-pinnate fronds, of a broad ovate form, and coriaceous texture, the lower pinnæ four or five inches long, with about four narrow and linear toothed pinnules, about two inches long, and a terminal one, double the length of the others ; it grows about eighteen inches high, with a decumbent caudex,

the stipes clothed with dark purplo scales. A stove species recently introduced from the South Sea Islands by Mr. B. S. Williams.

A. Belangerii. See *A. Veitchianum*.

A. bifidum. See *A. viviparum*.

A. brachypterum. A beautiful low-growing stove species with an upright caudex, the fronds growing horizontally and bi-pinnate, scarcely a foot in height, and somewhat after the growth of an *Adiantum*. Native of Sierra Leone.

A. Brownii. This has tri-pinnate fronds, from two to three feet high, of a lanceolate form, and rather drooping habit, the pinnae lanceolate, and dark green colour, the pinnules largest next to the stem, sharp pointed, and cut at the edges, into oval segments. A green-house fern, from New South Wales.

A. bulbiferum. A rather common green-house fern, but none the less beautiful, growing from two to three feet high, of a light green colour, the upper part of the fronds rather drooping, and produces plenty of young plants all over the fronds. Native of New Zealand.

A. caudatum. A stove fern, having pinnate fronds from one to three feet long, of rather a drooping habit and produced on a creeping rhizome; the pinnae from three to five inches long, and attenuated at the apex, and the sori very conspicuous. Native of the East Indies and other places.

A. cicutarium, Darea cicutarium, A. dissectum, Darea dissectum. A finely-divided stove fern, the fronds tri-pinnate, and growing upon an upright caudex; of a very delicate green colour, and requires careful management. Native of Tropical America.

A. cirrhatum. See *A. comptunii*.

A. compressum, *A. fecundum*. The fronds of this species grow about two feet high, pinnate, stout, and leathery, the main stem winged; the pinnæ broad and compressed, and bluntly cut at the margin; it produces plants from nearly all the pinnæ. A green-house fern from St. Helena.

A. comptonii, *A. cirrhatum*. This grows from twelve to eighteen inches high, the fronds pinnate, and of a beautiful dark green colour; producing young plants, on the apices of the mature fronds. A stove fern from Jamaica.

A. consimile. A dwarf-growing species, having pinnate fronds, the pinnæ large, and of an ovate form, and light green colour. A green-house species, native of Chili.

A. contiguum. This has pinnate fronds, about a foot high, of an ovate form, and lanceolate pinnæ, of a moderate texture, and dark green colour; the sori placed close to the midrib, and of a dark brown. A stove species from Ceylon.

A. contiguum fissum. A variety of the preceding, with the fronds nearly bi-pinnate; and lately introduced by Mr. B. S. Williams from the South Sea Islands.

A. cyrtoptera. See *A. rhizophorum*.

A. Dalhousiæ. See *A. alternans*.

A. decussata. See *Diplazium decussatum*.

A. dimidatum. A stove species, having pinnate fronds, about a foot long, with large pinnæ, wedge-shaped at the base, and deeply cut along the edges. Native of the West Indies, and other places.

A. dimorphum. A green-house species, growing from one to two feet high, and producing both barren and fertile fronds; but sometimes produces the both characters in the same frond; the barren ones are

bi-pinnate, with rather broad segments, while the fertile ones are tri-pinnate, and very finely cut. Native of Norfolk Island.

A. dissectum. See *A. cicutarium*.

A. divaricatum. See *A. flabellifolium*.

A. dubium. See *A. radicans*.

A. ebenum, A. polypodioides. A dwarf-growing green-house species, the fronds pinnate, and about nine inches long, of a lanceolate form; the pinnæ heart-shaped, and roundish at the top, the edges toothed, the stipes black and rather hairy. Native of the Cape of Good Hope.

A. elegantulum, A. incisum. A very handsome dwarf-growing species, from six to twelve inches long, and pinnate; the pinnæ deeply toothed, and of a light green colour. A green-house species, from Japan.

A. elongatum. A stove species growing from twelve to eighteen inches long, and pinnated with blunt pinnæ, and roundish at the top. Native of the Philippine Islands.

A. erectum. This grows about a foot long, with pinnate fronds of a lively green colour, and linear lanceolate in form, and with roundish toothed pinnæ; the sori rather large, and two on each pinnæ, the stipes black; in general appearance it resembles a large *A. formosum*. A green-house species from the Cape of Good Hope.

A. Fabianum. See *A. paniculaceum*.

A. falcatum. See *A. polyodon*.

A. Fernandezianum. A pretty little species, having pinnate fronds, borne on an upright caudex, and produces young plants at the apex; the pinnæ cut at the edges, and of an intense sea-green colour. A green-house species, from Monte Video.

A. ferulaceum. A stove fern, growing about a foot high, on the top of a short caudex; the fronds are of an ovate acuminate form, the pinnæ much divided, and finely cut; the pinnules linear, and of a very delicate texture. Native of New Granada.

A. flabellifolium, *A. flabelluatum*, *A. divarcatum*. A very pretty green-house species, of slender growth, and pinnate, producing fronds from nine to fifteen inches long, and pendulous; the pinnæ fan-shaped, of a bright green colour, and produces young plants on the ends of the fronds; it makes a good basket plant. Native of New Holland.

A. flabellifolium majus. A large-growing variety of the preceding; the fronds much longer, and the pinnæ larger. Native of New Holland.

A. flabelluatum. See *A. flabellifolium*.

A. flaccidum. See *A. odontites*.

A. flagelliferum. See *A. longissimum*.

A. formosum, *A. subulatum*. A very pretty dwarf-growing, green-house fern, from six to nine inches high, and pinnate, the pinnæ of an oblong form, overlapping each other, and beautifully cut at the edges; the stipes are black and shining, growing on an upright caudex, in a circular form, and arching outwards; the pinnules of a pleasing light green colour. Native of Jamaica.

A. fecundum. See *A. compressum*.

A. feniculaceum, *A. Fabianum*.

A. Mexicanum. A very graceful stove fern, with fronds one to two feet high, and three times divided, of a very dark green colour, gracefully arching, and viviparous, the pinnules of a linear form. Native of the Mauritis, &c.

A. furcatum. This grows from a foot to eighteen

inches high, having bi-pinnate fronds, of rather a thickish texture, and dark green colour; the pinnæ of a sharp oblong form, and deeply cut on the upper margin; the stipes are covered with scales, of a brownish colour. A green-house fern, from the Cape of Good Hope.

A. glandulosum. See *A. Petrarchæ*.

A. hastatum. See *A. planicaule*.

A. hemioutis. See *A. palmatum*.

A. h cristata. See *A. palmata cristata*.

A. h multifida. See *A. palmata multifida*.

A. heterocarpum. A very pretty stove species, having pinnate fronds; growing about a foot long, with oblong obtuse pinnæ, which are toothed on the upper side, of a membranous texture, and a very rich green colour: the rachis of an ebony black. Native of Tropical America.

A. Hookerianum. This is a green-house fern of dwarf habit, from three to six inches high, with pinnate fronds; the pinnæ roundish, sometimes lobed, and of a bright dark green colour. Native of New Zealand.

A. incisum. See *A. elegantulum*.

A. inequale. See *A. lineatum*.

A. Japonicum. See *Diplazium decussata*.

A. Lætum. A stove species having erect and pinnate fronds, growing about two feet high, and are produced on an upright caudex. Native of the West Indies.

A. laserpitifolium. A rather strong-growing species, having the fronds tri-pinnately divided into small segments, of a thinnish texture; the pinnæ mostly alternate, and rather stiff habit, the fronds are somewhat lanceolate, and grow from one to two feet high,

and of a light green colour. A stove species, from the Malay Islands.

A. laxum, *A. appendiculata*, *Canopteris appendiculata*. This grows from one to two feet long, the fronds sub-tripinnate, of a dark green colour; the pinnae ovate, sharply cut at the edges into segments, the stipes and rachis scaly, the latter winged, the fronds proliferous and growing on a creeping caudex. A green-house species, from Van Diemen's Land.

A. laxum pumilum. A pretty variety growing from twelve to eighteen inches long, and gracefully arching on all sides, of a bright green colour, and finely cut pinnae. A green-house fern, of garden origin.

A. lineatum, *A. inequale*, *A. plumosum*. This grows from twelve to eighteen inches long, of an erect form, and bi-pinnately divided into narrow segments of a light green colour. A very pretty stove species, from the Mauritius.

A. longissimum, *A. flagelliferum*. A stove species with long pendulous fronds, often growing from five to seven feet long, and are produced in great abundance; the pinnae of an acuminate form, deeply serrated, sessile, and alternate, of a leathery texture. Native of Malacca.

A. lucidum. A robust-growing green-house species, having pinnate fronds from two to four feet long; the pinnae large, of an ovate acuminate form, slightly serrated, of shining dark green colour; the stipes are slightly clothed with dark brown chaffy scales, while the caudex is more densely clothed with the same. Native of New Zealand.

A. macrophyllum. See *A. nitens*.

A. mexicanum. See *A. funiculaceum* and *A. dimicula*.

A. Michauxia. See *Athyrium Michauxia*.

A. Monanthemum. A green-house fern with pinnate fronds, growing about a foot high, of a bright green colour; the pinnæ half cut and partly overlapping, round on the top, and cut on the upper margin; the stipes black. Natives of the West Indies, and Cape of Good Hope.

A. myriophyllum. A very elegant, and finely-divided species, the fronds from six to eighteen inches long, tri-pinnate, of a lanceolate form, and produces young plants at the apex; the pinnules are very small and of a beautiful dark green colour. A green-house species, from Mexico and other places.

A. Novæ Caledonica. This grows from twelve to fifteen inches high, of a triangular form, and tri-pinnately divided into very narrow segments, of a very rigid texture, and not much wider than the rachides that they are attached to, the lower pinnules and pinnæ are deltoid; the pinnules are set such a distance from the main rachis, that it gives it a very open appearance. A stove species, from New Caledonia.

A. nitens, A. macrophyllum. A stove species, having pinnate fronds from twelve to eighteen inches long, with large pinnæ, wedge-shaped at the base, of a shining green colour, and large linear black sori, running parallel with the midrib. Native of the Mauritius and other places.

A. nitidum. See *A. pulchellum*.

A. obliquum. See *A. obtusatum*.

A. obtusatum, A. obliquum. A green-house species, from nine to twelve inches high with stiff and erect pinnate fronds; the pinnæ oblong, blunt, and serrated at the edges, of a leathery texture, the rachis

winged, and the stipes clothed with scales. Native of New Zealand.

A. obtusilobium. This species and the preceding are often confounded with one another, but they are quite different, this is a pretty trailing species, the fronds, from three to six inches long, and rooting at the apex, thus forming dense masses, the pinnæ of a deep green colour, and wedge-shaped. A green-house species, from the F'iji Islands.

A. odontites, *A. glaccida*, *Ctenopteris odontites* *C. glaccida*. This has bi-pinnate fronds, one to three feet long, of a pendulous habit; the pinnules deeply toothed, and of a very coriaceous texture, the whole frond proliferous, and of a bright green colour. A green-house plant, from New Zealand.

A. otites. See *Diplazium otites*.

A. paleaceum. This has pinnate fronds, with the pinnules of an oblique ovate form, serrated at the margin, and auriculated at the base; the rachis covered with hairs, the frond, one to two feet high. A stove species, from Tropical Australia.

A. palmatum, *A. hemionitis*, *Scolopendrium hemionitis*. This grows from six to nine inches high, having palmate fronds of a light green colour, and cordate at the base, of rather a leathery texture, and are borne on a creeping rhizome. A green-house species, and a native of the Canary Islands.

A. palmatum cristatum. A garden variety of the preceding, having the apex of the fronds tasseled. A green-house fern, and requiring the same treatment as the normal form.

A. palmatum multifidum. The fronds of this variety are as broad as long, and all the points of the fronds are many times divided, so that it is fringed

entirely round the margin. A green-house variety, from the Azores.

A. Petrarchæ, *A. glandulosum*. A pretty little dwarf and elegant species, with pinnate fronds, scarcely six inches high, and of a delicate appearance, and light green colour. A green-house species, from the South of France.

A. planicane, *A. hastatum*, *A. Mexicanum*. A stove species, with bi-pinnate fronds, slender, and somewhat of a triangular form, growing from one to two feet high, of a beautiful lively green colour, and thickly set on a creeping rhizome. Native of the East Indies.

A. plantigineum. See *Diplazium plantigineum*.

A. plumosum, See *A. lineatum*.

A. polyodon, *A. falcatum*. A stove species, growing from one to two feet high, having pinnate fronds, of a lanceolate form, and pendulous, the pinnæ cut at the edges, of a leathery texture, and dark green colour. Native of the East Indies, and New Zealand.

A. polyodioides. See *A. ebenum*.

A. porphyrorachis. This has somewhat an erect caudex, and produces a great number of barren fronds in proportion to the fertile ones, the stipes of the former are two to three inches long, and purple, while those of the latter are from six to twelve inches long, and clothed with black chaffy scales, the fronds are rather lanceolate, six to twelve inches long, and one to two inches broad, the pinnæ lanceolate, and toothed towards the top, and of a firm texture. A stove species, from Borneo.

A. proliferum. See *Callipteris prolifera*, and *Diplazium decussata*.

A. præmorsum. A green-house species, with bi-pin-

nate fronds, from twelve to eighteen inches high, growing on a creeping caudex, with long and jagged pinnæ of a deep green colour; the rachis and stipes are very scaly; the fronds drooping. Native of the Mauritius, and other places.

A. præmorsum Canariense. This variety has the fronds pinnate, with the pinnules deeply pinnatifid and growing about a foot high, and of a heavy green colour. Native of the Canary Islands.

A. præmorsum laceratum. This variety is divided into narrow and longish segments. Of garden origin.

A. pulchellum, *A. nitidum*. A dwarf-growing stove fern, having bi-pinnate fronds, of a slender and elegant form, and usually about nine inches high; the pinnæ are lance-shaped, and rather curved, and has long narrow brown sori on the back of the pinnæ. Native of Brazil.

A. punilum. This grows from three to four inches high, with fronds of a triangular form, and hairy stipes, borne on a creeping rhizome. A stove species, from the West Indies.

A. rachirhina. See *A. rachirhizon*.

A. rachirhizon, *A. rachirhina*. A stove species with bi-pinnate, and sometimes tri-pinnate fronds finely cut into narrow segments; the apex of the frond running out and producing young plants; the stipes and rachis shining black, the fronds pendulous. Native of Tropical America.

A. radicans, *A. dubium*. The fronds of this species grow about eighteen inches long, and pinnate, of rather a drooping habit; the apex of the frond devoid of pinnæ; and forms young plants. A stove fern, from Cuba.

A. resectum. A fine-growing, and distinct species, having pinnate fronds, about a foot high, with large oblique pinnæ, toothed on the upper edge, and of a deep-set green colour, and semi-transparent texture. A stove species, from Tropical America.

A. rhizophorum *A. cyrtopteron*. A pendulous species, with bi-pinnatifid fronds, from twelve to eighteen inches long, and rather triangular in form, of a light green colour, and shining; the apex of the fronds lengthening into a tail, and producing a young plant at the end. A stove species, from Jamaica and Venezuela.

A. Sandersonii. A proliferous-growing species, having pinnate fronds, six to ten inches long; the rachis slightly winged, and of a narrow linear form; the pinnæ nearly sessile and obliquely set on the rachis, slightly toothed, and has a solitary bud on each of the pinnæ. A green-house species, from Natal.

A. Schizodon. See *A. Viellardii*.

A. Serra, an erect-growing species, having pinnate fronds, from one to two feet high, or even more; the upper part gracefully arching; the pinnæ somewhat lanceolate, very regular, and deeply serrated at the edges, and of a beautiful shining green colour; the stipes are thickly covered with narrow brown scales, and has a very thick and sealy rhizome. A stove species, from Brazil.

A. Serra majus. A large form of the preceding, and growing, in some instances, to twice the size of the species.

A. serratum. A stove species, having simple fronds growing about two feet long, and four inches wide in the broadest part, serrated at the edges, and placed in a circle around an upright caudex. Native of Jamaica.

A. Shepherdii. See *Diplazium Shepherdii*.

A. striatum. See *Diplazium striatum*.

A. subulatum. See *A. formosum*.

A. thelypteroides. See *Diplazium thelypteroides*.

A. umbrosum *Allantodia umbrosum*, *Polypodium umbrosum*. A tall-growing green-house species, with fronds from three to four feet high, tri-pinnate, with the pinnae finely cut, lance-shape, and rounding at the top, and of a light green colour, the stipes have a few dark scales at the base, and have a short thick caudex, creeping closely to the ground. Native of Madeira.

A. Veitchiana *A. Belangeri*. A stove species, having feathery-like fronds, and bi-pinnate, of a dark green colour, from twelve to eighteen inches in height, and proliferous; the pinnules are narrow linear segments, but the upper ones nearest to the rachis are forked. Native of Java.

A. Viellardii, *A. schizodon*. This has bi-pinnate fronds, from twelve to eighteen inches high, of coriaceous texture, and ovate form, with about five pairs of pinnae, and a terminal one; they are cuneate at the base, and tapering into a short stalk; the appearance of the plant reminding one of a serrulated form of *Lomaria gibba*. A stove species, from New Caledonia.

A. V. facile. A variety of the preceding, with the pinnae narrower, longer, and more numerous than the original introduction. A stove fern of recent introduction from the South Sea Islands.

A. viviparum, *A. bifidum*, *Cornopteris viviparum*, A tri-pinnate species, with fronds about two feet long, and elegant narrow pinnae, of a beautiful green colour; and densely loaded on the surface with young plants. A green-house plant, from the Mauritius.

A. xiphophyllum. This grows from one to two feet high, with rather sessile pinnae, thirteen to twenty-five in number, from eight to nine inches long, toothed; and much acuminate at the top, and rather a leathery texture. A stove species, from Borneo.

A. zeylanicum. See *Diplazium zeylanicum*.

ATHYRIUM.

Athyrium. *Roth*, the derivation of doubtful meaning. By some authors this genus has been included in the *Asplenium*, but is quite distinct from that as the sori are more of a kidney shape, and the outer side fringed with hairs. There is only one species native of our country, and that has a great number of varieties. All the species grow well in peat, loam, and sand, and are propagated by spores and divisions, and are all deciduous.

A. Goringianum pictum. This is a handsome species, and quite hardy, the fronds are from six to fifteen inches long, and tri-pinnate of rather a lanceolate form, and pendulous habit, the rachis are reddish, and the pinnae at the base of a light pinkish colour, so as to form a band the whole length. A deciduous species from Japan.

A. Japonicum variegatum. A fern somewhat resembling a lax, or loosely-arranged form of our lady fern, *A. filix femina*, with a great part of the pinnae white. A hardy deciduous species, and, as its name implies, a native of Japan.

A. Michauxia, *Asplenium Michauxia*. A strong-growing species, with the fronds several times divided, of a lanceolate form, and two to three feet high, the pinnae are flat, rather distant, and deeply serrated, it has somewhat a resemblance to our native species, *A.*

filix femina, it is deciduous, and perfectly hardy. A native of North America.

A. thelypteroides. See *Diplazium thelypteroides*.

BALANTIUM.

Balantium, *Kaulfuss*, from *balantion*, a purse, in reference to the form of the indusium. This genus has only one species, and, on account of its giant growth, is by some writers placed as a tree fern, but it does not produce a stem, it is a grand plant, and by some authors, it is placed among the *Dicksonias*; the sori is placed in pouch-like appendages, and are very conspicuous, it will grow well in a green-house, in a mixture of loam, peat, and sand.

B. antarctica. See *Dicksonia antarctica*.

B. arborescens. See *Dicksonia arborescens*.

B. auricomum. See *D. arborescens*.

B. enleita. A noble strong-growing species, from two to five feet high, or more, with bright shining fronds, tri-pinnate, sometimes quadri-pinnate, and deltoid in shape, and produced on a hairy decumbent stem. A green-house species, from the Azores and Madeira.

BLECHNUM.

Blechnum Linnæus. Derived from *blechnon*, a Greek name for a fern, it is easily recognised by the sori being placed in continuous lines on each side of the midrib of the pinnules, some of the species form what are termed sub-arborescent stems, while others scarcely attain any height, and have creeping rhizomes. They are nearly all from the Tropics, but a few will do in a green-house temperature, all are of easy cultivation, and are easily propagated by division and spores,

many of the species will appear spontaneously, in different parts of the houses where grown; these grow freely in a mixture of peat and sand, with a little loam added. Some of these species are the oldest inhabitants of our houses, *B. Australis* being introduced about the year 1691.

B. attenuatum. See *Lomaria attenuatum*.

B. Australis, a stove species having pinnate fronds, about a foot long, the pinnae sessile, and slightly sickle-shaped; the fronds lanceolate, the apex entire, and lengthening into a tail-like form, and of a light green colour. Native of the Cape of Good Hope.

B. Brasiliensis, *B. canadensis*. A fine-growing species, with an upright caudex, with age from one to two feet high; the fronds growing in a circle on the crown, from three to four feet long, of a lanceolate form, and pinnate, the pinnae seven to eight inches long, lanceolate, and decurrent; the young fronds are of rather a copperish hue, which changes when mature to a light green colour. A stove plant, from Brazil.

B. canadense. See *B. Brasilense*.

B. capense. See *Lomaria capensis*.

B. cartilagineum. A green-house species, with the fronds pinnate, and lanceolate in form, three or four feet high, the lower pinnae eight inches long, and tapering to a point, and of a light green colour, the crown of the plant and stipes, are clothed with long black chaffy scales. Native of Australia.

B. conjugatum. See *B. occidentale*.

B. fraxineum. See *B. fraxiniifolium*.

B. fraxiniifolium, *B. fraxineum*, *B. latifolium*. This species grows from six to twelve inches high: with pinnate fronds, of rather lanceolate form; the

pinnae obtuse, and blunt at the top, the terminal pinnae more pointed, of rather a thick texture, and bright green colour. A stove fern, from South America.

B. glandulosum. A stove species, growing about a foot high; and having pinnate fronds, the pinnae very narrow, and sharp at the ends, of a pale green colour, and creeping rhizomes. Native of Brazil.

B. gracile. A very pretty distinct species, with pinnate fronds, a foot long; and rather of a coriaceous texture; the pinnales lanceolate, from eight to ten in number, and a terminal one much longer, the side ones alternate; the young fronds are of a crimson tint, and changing with age to a light green colour; the stipes are slender, of a reddish brown, and clothed with a few scales, and growing on a creeping rhizome. A stove species from Tropical America, and West Indies.

B. hastatum. A green-house species, having pinnate fronds about a foot long; with narrow pinnae, the lower ones spear-shaped, the upper ones sickle form, and has a creeping rhizome. Native of Chili.

B. intermedium. A distinct species with pinnate fronds, from six to twelve inches long, but only having two pair of pinnae, and a long terminal one, four inches long or more; the stipes are tinted with red. A stove fern from Brazil.

B. Japonicum. See *Woodwardia Japonica*.

B. lanceola. A pretty species growing about six, inches long; and having simple fronds, both fertile, and sterile, the latter more broader, and shorter, the whole of a lanceolate form, and bright dark green colour. A stove species, from Brazil.

B. latifolium. See *B. fraxinifolium*.

B. longifolium. A pretty little fern with fronds, about six inches long, with a pair of pinnæ at the base; the upper part simple. A stove species, from Trinidad.

B. nitidum contractum. This has pinnate fronds, from one to two feet long; the pinnæ linear, acuminate, and serrated at the margins; of a very dark green colour, the fronds are a bright red, which gives it a pleasing appearance. A stove species, from the Phillipine Islands.

B. Occidentale. This grows from twelve to eighteen inches long, and pinnate, of a lanceolate form, and rather pendulous; the pinnæ sessile, and auriculate on the upper margin, and of a bright green colour. A stove fern, from the West Indies.

B. Occidentale multifidum. A crested variety of the preceding; with all the apices of the pinnæ tasseled. Native of Dominica.

B. Orientalis. A small tree fern, as it forms an upright caudex, with pinnate fronds, two to three feet long, of an ovate lanceolate form, and leathery texture; the pinnæ of a linear lanceolate form, from three to six inches long; the stipes, and crown, are clothed with long brown shining scales. A stove fern from the East Indies.

B. polypodioides. A stove species from twelve to eighteen inches long, and pinnatifid; when young, of a beautiful pink colour, which changes with age, to a rich dark green colour. Native of Brazil.

B. serrulatum. A fine species growing one to two feet long; the pinnæ broadly serrated, of rather thickish texture, and of a bright green colour. A stove species, from the Mauritius, and other places.

B. triangulare, *B. unilaterale*. This has pinnate

fronds growing about a foot long, of a triangular form, the pinnæ generally entire, the end one running out very narrow. A greenhouse species, from Mexico.

B. unilaterale. See *B. triangulare*.

B. virginica. See *Woodwardia Virginica*.

B. volubilis. See *Salpichlena Volubilis*.

BOTRYCHIUM.

Botrychium, Swartz, from *botrys* a bunch, in reference to the form of the indusium. A genus of ferns commonly known as moonwort, with one representative, native of our Island. These plants have their fertile parts branched from the base of the sterile fronds; all are deciduous, and are best grown in loam, of a sandy nature, and propagated by spores and divisions, when obtainable.

B. australe. A very finely divided species, with the fronds bipinnate, or tripinnate, the sterile segments serrated on the margins; the fertile ones paniculate, and of a bright green colour, and grows from twelve to fifteen inches high. A deciduous greenhouse fern, from New Holland.

B. daucifolium, *B. subcarnosum*. This grows from twelve to fifteen high, with bipinnate, or tripinnate decomposed sterile fronds, and broad obtuse segments, of a bright green colour, and slightly serrated; the fertile ones in panicles. A deciduous stove species, from Ceylon.

B. fumarioides. See *B. lunarioides*.

B. lunarioides, *B. fumarioides*, A hardy species, having bi-pinnate sterile fronds, about a foot high, with oblique segments, of a dark green colour; and the fertile fronds panicled like all the species, and deciduous. Native of North America.

B. lunarioides virginicum. See *B. virginicum*.

B. subcarnosum. See *B. daucifolium*.

B. Virginicum, *B. lunarioides virginicum*, a hardy deciduous species, having bi-pinnate fronds, of a dark green colour, growing about a foot high, and the fertile segments are in a bell shape form; and is commonly called the rattlesnake fern. Native of Canada, and the United States.

BOTRYOGRAMMA.

Botryogramma Karwinkskii. See *Llavea cordifolia*
Bowringia insignis. See *Brainea insignis*.

BRAINEA.

Brainea, named by Mr. J. Smith, late curator of Kew, in honour of C. Brain Esq.; there is only one species of this genus, and when full grown reaches to the height of three or four feet, and from one to two feet in circumference; it does well in equal parts of loam and peat, with a good sprinkling of sand, and charcoal dust.

B. insignis, *Bowringia insignis*, a very pretty little arborescent fern, forming in cultivation an erect caudex; from one to two feet high, and producing pinnate fronds, from two to three feet long, of a light green colour above, and glaucous below, the stipes and crown, are closed with light brown chaffy scales, and of a very graceful habit. A stove species, from Hong-Kong and other places.

Cænopteris. See *Asplenium*.

CALLIPTERIS.

Callipteris, *Bory*, named from *kalos*, beautiful and *pteris*, a fern, in allusion to the beauty of the fronds,

its principal difference from *Diplazium*, is the large veins being pinnated or branched, some of the species form an upright caudex, like a miniature tree fern, all are of strong growth, and well worth growing where the room can be spared; they are easily grown from spores, and also by divisions, and do well in a mixture of loam, peat, and sand.

C. esculentum, *Diplazium esculentum*, *Hemionitis esculentum*. This has a slender stem, on which the fronds often obtain the height of three or four feet, bipinnate, and arching with deeply serrated lanceolate pinnae, of a dark green colour, and frequently produces sori while the fronds are only pinnate; the stipes have a few spines. A stove species, from Ceylon, and other places.

C. Malabarica, *Diplazium Malabaricum*. A stove species growing from three to four feet long, having bipinnate fronds and lance shape pinnae, the fronds are covered with a wooly pubescence, and channeled stipes. Native of the West Indies.

C. prolifera *Asplenium proliferum*. A fine ornamental stove species, with pinnate fronds from one to three feet high; the pinnae six to eight inches long, and two or three broad, of a dark shining green colour, and producing abundance of sori on the veins. Native of the East Indies.

C. sylvatica. See *Diplazium sylvaticum*.

Campteria. See *Pteris biaurita*, and *P. nemoralis*.

CAMPYLONEURON.

Camphyloneuron, *Presl*, from *campton*, arched, and *neuron*, a nerve, referring to the arched veins; it is separated from *Polypodium* on account of the union of the veins and biserial sori; they all have simple,

entire fronds, and are all of easy culture, and succeed in a mixture of loam, peat, and sand.

C. angustifolium, *Cyrtophlebium angustifolium*. This grows from twelve to twenty inches high, with long narrow simple fronds, of a dark green colour; and coriaceous texture, and growing thickly on a creeping rhizome. A stove species, from South America.

C. decurrens, *Cyrtophlebium decurrens*. A stove species growing from one to three feet long, and having pinnatifid fronds; the pinnæ six to nine inches long, of a coriaceous texture; erect growth, and shining green colour. Native of Brazil.

C. nitidum, *Cyrtophlebium nitidum*. This has simple fronds, two to three feet long, with erect and very stiff growth, brittle, and of a shining green colour, and growing on a short blunt creeping scaly rhizome. A stove plant, from the West Indies.

C. phyllitidis, *Cyrtophlebium phyllitidis*. A strong-growing stove species, with long, narrow, undulated fronds, from two to three feet long, of a pale green colour; and a very leathery texture. Native of the West Indies.

C. repens, *Cyrtophlebium repens*. A distinct species, from all the others, having reclining simple entire fronds, from twelve to eighteen inches long, of a lanceolate form; the upper sides are covered with white scales, and has a slender creeping rhizome, running a considerable distance. A stove species, from the West Indies.

C. rigidum, *Cyrtophlebium rigidum*. This grows from nine to eighteen inches long, with narrow fleshy fronds, about half an inch wide, and bright shining green colour; the sori dark green, and very conspicuous. A stove species, from the Tropics.

CAMPTOSORUS.

Camptosorus. There is only one species of this in cultivation, and which is also known under the name of *Antigramma*; it is a subgenera of *Asplenium*, and commonly called the walking fern.

C. rhizophylla, *Antigramma rhizophylla*, *Scolopendrium rhizophyllum*. A hardy species about six inches long, with simple fronds, lanceolate, and heart-shaped lobes, at the base, and running out to a point; which arches over and produces young plants. Native of North America.

CASSEBEERA.

Cassebeera. Named in compliment to J.H.Cassiber, a German botanist; this genus is formed principally out of *Pteris*, and *Cheilanthes*, the most prominent features of the genus, is founded on the sori, being seated on the top of four veins: and is placed on the margin of the pinnæ. Some of the species require stove temperature, and others will do in a green-house temperature, all grow well in a mixture, of two parts peat, and one loam, with a liberal addition of sand, they are easily propagated by spores and division.

C. argentea. See *Cheilanthes argentea*.

C. cuneata, *Cheilanthes cuneata*. A stove species having bi-pinnate fronds, from nine to twelve inches high, of a pleasing green colour; having both barren, and fertile fronds, the former cuneate, and the latter pectinate. Native of Mexico.

C. farinosa. See *Cheilanthes farinosa*.

C. hastata, *Pteris hastata*, *Pteris adiantoides*. A green-house species, from twelve to eighteen inches long, and bi-pinnate, the pinnæ heart-shaped at the

base; and running out to a point; of a dark green colour, and black stipes. Native of the Cape of Good Hope.

C. hastata latifolia. See *C. hastata macrophylla*.

C. hastata macrophylla, *C. hastata latifolia*. A large variety of the preceding, the fronds much longer, and the pinnae twice the size of the normal form. Of garden origin.

C. intramarginalis, *Pteris fallax*, *Pteris intramarginalis*. A stove species growing about a foot high, with the fronds bi-pinnate, and tri-pinnate at the base, the pinnae serrated, and has dark brown slender stipes. Native of Mexico.

C. pedata, *Pteris pedata*. This grows from six to twelve inches high, the fronds divided into five parts, and each part pinnated and gracefully drooping; and has slender black stipes. A stove species, from the West Indies.

Cardiochloa macrophylla. See *Aspidium macrophyllum*.

Ceratodactylis Osmundioides. See *Llavea cordifolia*.

CETERACH.

Ceterach, *Willdenon*. From its being called *Chetherah*, by the Persians. A genus commonly called the scale ferns, on account of the under part being densely clothed with a chaffy covering, so much as to entirely hide the sori; one species is native of our own island; and the species here mentioned is the only exotic one in cultivation, it grows in a mixture of loam, peat, and sand, and propagated by spores and divisions.

C. aureum. This may be described as the giant plant of our native species; the fronds are large, and

massive in appearance from twelve to fifteen inches long, and four inches in breadth, the lobes deeply cut, very broad, and obtuse, deep green on the upperside, and densely clothed on the under surface, with large chaffy scales of a golden brown colour. A green-house species, from the Madeira and Teneriffe.

CERATOPTERIS.

Ceratopteris, *Brongiard*, named from *keras*, horn, and *pteris*, a fern. A curious genus with only one species, and of annual duration, it is an aquatic plant, and viviparous; and of a light green colour, it grows well in a mixture of loam and sand, with the pot plunged to the rim in water.

C. thalictrioides, *Ellobocarpus Oleraceus*. An aquatic annual species, with fronds from one to two feet long, with barren and fertile fronds, the both tri-pinnate; the former beautifully veined, and recurved at the edges, and produces young plants from the hollow of the segments; and floating on the water, while the latter are erect, and rolled towards the back. A stove species, from Tranqueb.

C. Parkerii. This only differs from *C. thalictrioides* in a botanical point of view, and then only in the sori. A stove plant.

CHEILANTHES.

Cheilanthes, *Swartz*. Named in allusion to the form of the indusium, from *cheilos*, a lip, and *anthos*, a flower. Several of the species are very minutely divided, and others clothed on the underside with a farinose powder, which adds greatly to their beauty; they are very impatient of water on the fronds, so they

should be placed in one of the driest parts of the fernery ; they succeed best in a mixture of fibrous peat and loam, with plenty of silver sand.

C. alabamensis. A green-house species having bi-pinnate fronds, about six inches long, of a very dark green colour ; and borne on a creeping rhizome. Native of the Southern parts of the United States.

C. argentea, *Cassebeera argentea*, *Pteris argentea*. A tri-partite species growing about six inches high, of a triangular outline, and of a dark green colour on the upper side ; and densely clothed below, with a white farinose powder, and margined with the black sori ; and has jet black stipes. A green-house species, from Japan.

C. Bergiana. See *Hypolepis Bergiana*.

C. Borsigiana, *Nothochlana sulphurea*, *Pteris sulphurea*. This also has tri-partite fronds of a triangular outline, and bright green on the upper side, and clothed below with a yellowish golden powder ; the black sori placed on the margin ; and has jet black stipes. A warm green-house species, from Peru.

C. capensis. A dwarf green-house species having bi-pinnate fronds, and ovate sessile pinnae, and of a dark green colour. Native of South Africa.

C. cuneata. See *Cassebeera cuneata*.

C. davallioides. See *Ochropteris pallens*.

C. dealbata. See *C. farinosa*.

C. elegans, *Myriopteris elegans*. A very elegant species having tri-pinnate fronds, minutely divided into roundish cuneiform segments, of a light pleasing green colour ; the stipes and under side of the fronds are clothed with a brownish pubescent covering ; and grows from nine to twenty inches long, of an arching habit ; this is generally considered a stove plant, but

some of the best specimens I have ever seen, were grown in cool ferneries. Native of Chili, Peru, and other places.

C. farinosa, *C. dealbata*, *Cassiope farinosa*, *Pteris farinosa*. A strong-growing species in good specimens, it grows two feet high, with bi-pinnatifid fronds, of a triangular outline, and deep green above, and densely clothed below, with a silvery white powder, and a dark margin of sori, and with black stipes. A stove species, from the East, Indies and Arabia.

C. fragrans, *C. odorata*, *Polypodium fragrans*. A green-house and dwarf-growing species, from six to eight inches high; the fronds bi-pinnate, and obtuse pinnæ pinnatifid at the base; and when handled emits a pleasant perfume, which it retains a long time after it is gathered. Native of the south of Europe and other places.

C. frigida, *Myriopteris frigida*, *Nothochlana frigida*. A stove species growing from twelve to twenty inches high, tri-pinnate, and dark green on the upper side, and clothed below with longish hairs; of a variable form, and growing on a creeping rhizome, which is densely clothed with brown chaffy scales. Native of Tropical America.

C. glauca. See *C. hirta*.

C. gracillima. This grows from six to nine inches high, and growing in tufts, of a bright green colour, on the upper side, and clothed below with a brown umbescence, which is a striking contrast to the other part. A green-house species, from California.

C. hirta, *C. glauca*, *Myriopteris hirta*, *Nothochlana hirta*. This grows from twelve to eighteen inches high, having sub-tripinnate fronds, delicately cut into multi segments, pale green in colour, and erect in habit.

the whole frond covered with gland-bearing hairs. A warm green-house species, from the Cape of Good Hope.

C. hirta Ellisiana. A large form of the preceding species; and with a splendid habit. A stove variety, from Madagascar.

C. lendigera, *C. tenuis*. A tri-pinnate species with fronds, growing from ten to twelve inches long, and divided into very small segments, of a delicate green colour; the stipes covered with a brownish pubescence. A green-house species, from the North of Spain.

C. mexicana. See *C. farinosa*.

C. micromera. See *C. microphylla*.

C. microphylla, *C. micromera*, *Nothochlæna cheilan-thioides*. This has bi-pinnate fronds of a lanceolate form, from twelve to eighteen inches long, or even more, and very slender; the segments small, and clothed with a brownish pubescence, and sparingly clothed with gland-bearing hairs. A stove species, from West Indies.

C. multifida. A green-house species quadripinnately divided, with fronds from six to nine inches long, triangular in outline, of a dark green colour; the stipes are large for the size of the fronds, and grow on a creeping rhizome. Native of St. Helena and the Cape of Good Hope.

C. odora. See *C. fragrans*.

C. profusa, *Nothochlæna profusa*, *Pellæ profusa*. A dwarf-growing stove species, having bi-pinnate fronds, with longish spatula-like pinnules; and slightly covered with a whitish farinose powder. Native of South Africa.

C. pteroides, *Adiantum pteroides* *Adiantopsis pteroides*, *Cassebeera pteroides*. A very pretty green-

house species, and I think may still be found throughout the country under all the above synonymes; it has tri-pinnate fronds, from twelve to eighteen inches long, the pinnae of a thickish substance, and cordate form, and a bright green colour; the sori placed in a continuous line around the margin of the pinnae, and of a brownish colour. Native of South Africa.

C. pulveracea, *Aleuritopteris Mexicana*. A warm green-house species, and has a great resemblance to *farinosa*, and by some it is used as a synonyme of that species; this has bi-pinnatifid fronds from six to twelve inches high, and sometimes in strong plant eighteen inches high, of a deep green colour, and covered below with a white farinose powder, and lightly sprinkled with a farinose powder on the upper surface. Native of Mexico.

C. radiata, *Adiantopsis radiata*. A stove species growing from six to twelve inches high and nearly as broad, the fronds are pinnate, and all rising from the same point, with five or seven branches, in a radiating form; it has shining black stipes, borne on an upright caudex.

C. repens. See *Hypolepis repens*.

C. spectabilis. A stove species having tri-pinnate fronds of a spreading and straggling habit, and beautiful light green colour, the stipes and rachis slightly hairy, and of a jet black colour. Native of Brazil.

C. tenera. See *C. tenuifolia*.

C. tenuifolia, *C. tenera*, *Cincinnalis tenera*, *Nothochlana tenera*. This has tri-pinnate fronds growing from twelve to eighteen inches high, and deciduous, of an ovate outline, and erect habit; the pinnules

rather long and sharp pointed, and slightly turned up at the margins; the stipes are brown, and scaly. A warm green-house species, from New Holland.

C. tenuis. See *C. lendigera*.

C. vestita. See *Nothochlæna vestita*.

C. viscosa. A dwarf species from six to nine inches long, tri-pinnate, and triangular in form, and palo green colour; growing on a creeping rhizome and covered with sticky hairs. A warm green-house species, from Tropical America.

Chnoophora. See *Alsophila glauca*.

Chrysodium. See *Acrostichum aureum*.

Chrysopteris. See *Phlebodium*.

CIBOTIUM.

Cibotium, *Kaulfuss*. Named from *kibotos*, a little chest, in reference to the form of the indusium. A genus generally known as tree ferns; but there are a few species with decumbent stems, and others grow a few feet high; and one or two rise to the height of thirty feet; they all grow well in a mixture of good fibrous peat and sand, and are all of easy culture; there are few additions to our gardens of late from the Sandwich Islands.

C. Barometz. Was formerly called the vegetable Tartarin, and Scythian lamb, from the marvellous tales of early Asiatic travellers, describing it as an animal growing from the soil, and clothed like a lamb, with wool; being fixed to the spot, it was unable to roam; but had the power of turning round, and when it had consumed all the herbage within its reach died, several other fabulous tales have been told concerning

this plant, Darwin thus describes the vegetable lamb adopting the tale concerning it :—

“Cradled in snow, and fann'd by Arctic air,
Shines gentle Barometz ; thy golden hair,
Rooted in earth, each cloven foot descends ;
And round, and round, or flexible neck she bends,
Crops the grey cord moss, and hoary thyme ;
Or laps with rosy tongue, the melting rime ;
Eyes with mute tenderness, her distant dam ;
Or seems to bleat, a Vegetable Lamb.”

C. Chamissoi, *Dicksonia Chamissoi*, *D. splendens*, *Pinonia splendens*. This, in its native haunts, produces a trunk three to six feet high, with bi-pinnate fronds, of a broad ovate form, and rather herbaceous in texture, and glossy green on both sides ; the stipes and rachis, clothed with mealy hair-like scales ; the pinnae ovate lanceolate, and the pinnules linear oblong. A stove species of recent introduction, from the Sandwich Islands.

C. Barometz, *C. glaucescens*, *Polypodium Barometz*, *Nephrodium Barometz*. This has a short thick stem, with bi-pinnate fronds, erect and growing from six to ten feet high, the pinnae deeply pinnatifid ; the crown and stipes are clothed with long brownish hairs, the fronds are of a lively green colour, and glaucous underneath. A warm green-house species, from Cochin China.

C. Billardieri. See *Dicksonia Antaretic*.

C. glaucescens. See *C. Barometz*.

C. glaucum, *Dicksonia glauca*, *Hiatea*. A stove species, with a stem of moderate stoutness, about two feet high ; and clothed at the crown with tawny scales ; the fronds are tri-pinnately divided, rather of a leathery texture, and ovate outline, the pinnae are broadly ovate, with a smooth rachis ; the pinnules

sessile, and closely set, smooth, and green on the upper surface, and glaucous below. Native of the Sandwich Islands.

C. Menziesi, *Dicksonia Menziesi*. This also is from the Sandwich Islands; and produces a stem, from three to four feet high; the crown and base of the stipes are densely clothed with dark chestnut brown, and black-tipped hairy scales; the stipes are stout, and clothed with black spreading hairy scales; and has a smooth rachis, the fronds are bi-pinnate, of an oval outline, and five to six feet long, leathery in texture and dark green on the upper side, the under side paler, and studded with wart-like excrecence. A stove species.

C. nigrescens. See *C. pruinatum*.

C. princeps. See *Cyathea princeps*.

C. pruinatum, *C. nigrescens*, *Dicksonia Menziesi* var *pruinata*. An allied species to *Menziesii*, and has a trunk from three to four feet high; the crown furnished with a dense shaggy covering, of dark chestnut hair-like scales, which are dark coloured towards the tips, and massed together at the base of the stipes, which gives them the appearance of a blackish purple hue; and produces fronds six to eight feet long, of a dull green on the upper side, the lower side glaucous, and covered with small stellate bodies, which gives it a punctulate appearance, bi-pinnate, and slightly coriaceous in texture. A stove species, from the Sandwich Islands.

C. regale. A warm green-house species, which has a tall-growing stem, ten feet or more in height, with broad erect fronds, slightly arching; and are divided into finely divided pinnules, of a dark green colour; the stipes and rachis, as well as the crown are densely

clothed, with long silky cinnamon coloured hairs. Native of Mexico.

C. Scheidei. This is a tall-growing Mexican species; the stem of which, in its native habitat, grows from ten to fifteen feet high, but, in this country, they appear to grow very slowly; it has bi-pinnate fronds, pendent, and spreading, with small pinnales, deeply pinuatifid, of a pleasing light green colour, and glaucous beneath; the crown as well as the stipes, and rachis, are densely clothed with long light coloured chestnut woolly hairs. A warm green-house species.

C. spectabile. This is closely allied to *C. regule*, the principal difference being the colour of the hair on the crown, which, instead of being cinnamon coloured, are ashy grey, or rather tawny. A warm green-house species, from Mexico.

Cincinalis. See *Cheilanthes*, and *Nothochlana*.

Cionidium. See *Trichocarpa*.

Cnemidaria. See *Ilmitelia horrida*.

Cnoophora glauca. See *Alsophila glauca*.

Colysis. See *Polypodium*.

Coniogramma. See *Dictyogramma*.

Craspedaria. See *Niphobulus*.

CYATHEA.

Cyathea, *Smith*. From *kyatheion*, a little cup, in reference to the form of the indusium. This genus very closely resembles *Alsophila*; the chief point of distinction is the cup-like form of the indusium, but it is often difficult to determine, with any degree of certainty; they have a wide geographical range, both in temperate, and tropical climates, the temperate species have usually as a rule, the stoutest trunks; while the stipes of the tropical ones are more or less

armed with spines, and more slender stems; some of the species, in their natural habitat, grow fifty feet or even more in height, they grow well in a mixture of one third loam, and all the other parts peat, with plenty of sand to keep it open; the stems require plenty of water to grow to perfection.

C. aculeata. A tall-growing species with a slender stem, with broad and handsome bi-pinnate fronds; and has the peculiarity of having a pair of small pinnae, near the base; and from three to five feet or more in length; the segments having a few short hairs; the stipes thickly furnished with short prickles, and the crown of the plant clothed with brown chaffy scales. A stove species, from the West Indies.

C. arborea, *C. elegans*. *C. Grevilliana*. A stove species, from the West Indian Islands, and grows from twenty to thirty feet high, and very slender; the fronds tri-pinnate, five to twelve feet long, and gracefully arching; the pinnae from one to two feet long, the segments finely divided, and of a vivid green colour on the upper side, and paler below; the stipes are armed at the base with a few short blunt spines, and, as well as the crown of the plant, are clothed with large white chaffy scales; the rachis clothed with the same coloured scales, but much smaller. An elegant and very desirable species.

C. Beyrichiana. See *Alsophila Beyrichiana*.

C. Burkeii. This has a large stem, on which grows the handsome bi-pinnatifid, and pendulous fronds; from two to four feet long, and bright green colour; the stipes are very dark, with numerous small spines at the base, and thickly clad with large brown, and shining chaffy scales. A warm green-house species, from South Africa.

C. canaliculata. A rather slender stem species, and very dark colour, from ten to fifteen feet high; the fronds from four to eight feet long, or even more, bi-pinnate, and leathery in texture, of an intense deep green colour, and paler underneath; the stipes are black, and densely clothed at the base, with large chaffy scales, of a dark colour; the pinnules are broad and deeply pinnatifid; the sori large and conspicuous. A stove species, from Madagascar and other places.

C. capensis. See *Alsophila capensis*.

C. Cunninghamii. A green-house species with a medium size stem, and finely divided tri-pinnate fronds, from five to ten feet long, of a bright green colour, and feathery appearance; the stipes are black, and slender, adhering to the stem after the fronds are withered. It has the appearance of being an intermediate form between *C. Smithii*, and *C. medullaris*. Native of New Zealand, but very rare.

C. dealbata. This is a green-house species, and I think may truly be called a gem in this genus; the stems are rather stout, and retain the base of the old stipes, and from six to twelve feet long in this country; but in its native habitat attains an height of twenty, to five and twenty feet; the fronds are bi-pinnate, from four to eight feet long, the pinnules narrow and deeply pinnatifid, of a dark green on the upper side and silvery white below; the crown of the plant, as well as the stipes, and rachis, are densely clothed, with brown rusty-coloured deciduous scales. A very distinct species from New Zealand.

C. Dregii. A green-house species with a stout stem on which rises its bi-pinnate fronds, and has pinnatifid pinnules, dark green on the upper side, and paler below; the stipes have the peculiarity of having a pair of

pinnæ developed near the base; and are sparingly clothed, with reddish brown chaffy scales. Native of South Africa.

C. excelsa. A handsome species, having a dark-coloured and slender stem, which produces a grand head of tri-pinnate fronds, of a deep green colour, and rather arching habit, with the pinnæ finely developed, plants from one to two feet long, or even more, this is often confounded with *Alsophila excelsa*, but the two are distinct, to the extreme. A stove species, from Mauritius and Bourbon.

C. elegans. See *C. arborea*.

C. funebris. A green-house species, somewhat resembling *medullaris*, with stout and dark-coloured stems; the crown densely clothed, with blackish scales; the fronds broad and massive, several times divided, and coriaceous in texture, and of an intense deep green colour. Native of New Caledonia.

C. Grevilliana. See *C. arborea*.

C. Hookerii. A small-growing species, with a slender stem, with the lower part of the fronds pinnate, the upper pinnatifid, the lower pinnæ are obtuse, the upper ones longer, and acuminate, and slightly serrated at the edges, of a bright green colour, and membranous in texture; the base of the stipes has a few black chaffy scales. A stove species, from Ceylon.

C. horrida. A stove species which is rather rare, and produces fronds, of a very dark green colour; the stipes are thickly clothed, with a lightish brown pubescence, and are armed with longish brown-black thorns, which protrude through the covering, the under side of the rachis is armed as well with long spines usually in pairs. Native of Martinique.

C. Inrayana. This has a slender stem, with the base of the stipes furnished with short prickles, and adhere to the trunk for a considerable time; the stipes and crown of the plant are clothed with large ferruginous chaffy scales; the fronds bi-tripinnate, from three to twelve feet long, of a light green colour; there appears to be several varieties of this, the difference being the breadth of the pinnae and pinnules. A stove species from Jamaica, &c.

C. insignis. See *C. princeps*.

C. integra. A rare stove species, with broad lanceolate fronds, bi-pinnate, sometimes tri-pinnate, the segments broad, of a deep green colour, and unarmed stipes. Native of the Philippine Islands.

C. medullaris. A strong-growing species, which grows from twenty to thirty feet high, the stipes and rachis are black; the former has a few short spines, the whole of the frond before it unfolds is completely covered with large black chaffy scales; the fronds grow from ten to fifteen feet long, and bi-tripinnate, of a leathery texture, and deep green colour. A green-house species, from New Zealand and other places.

C. muricata. A stove species, from the West Indies, and rather a strong-growing plant, and produces a beautiful head of bi-pinnate fronds, of a leathery appearance, and dark green colour; the pinnae from twelve to fifteen inches long, of an oblong acuminate form, the segments obtuse, and crenated at the edges, the stipes and rachis, are armed with short prickles. A very attractive and magnificent species.

C. nigrescens. A stout-growing species, the stipes and stem are both armed, with stout black spines, and

broad massive-looking fronds, bi-pinnate, or tri-pinnate, the pinnae from twelve to fifteen inches long, the pinnules deeply pinnatifid, the segments obtuse, and of a very deep green colour. A stove species, from Jamacia and other places.

C. princeps, *C. insignis*, *Cibotium princeps*. A fast-growing species, bearing tri-pinnate fronds, which in strong specimens, grow to the length of fourteen or fifteen feet long, of a bright green colour on the upper side, and glaucous below; the crown of the plant as well as the stipes and rachis, are densely clothed, with large ash-colour scales, of a chaffy nature. A green-house species, from Mexico.

C. riparia. See *Alsophila capensis*.

C. Schauschin. A stove species, having bi-pinnate fronds, of a dark green colour above, and paler below, with rather linear oblong and obtuse segments, slightly crenated; the stipes and rachis are armed with short prickles. Native of Tropical America.

C. serra. A tall-growing species, with stems from ten to thirty feet high; with the fronds two or three times divided, and from six to twelve feet long, or even more; the stipes are stout and having short prickles, and, as well as the crown are densely clothed with very large fawn-coloured scales. A stove species, from the West Indies.

C. sinuata, *Schizocena sinuata*. A small-growing and very rare species, with stems from one to three feet high, and very slender, and produces simple lanceolate fronds, from nine to eighteen inches long, and an inch broad, of a bright green colour, and undulated at the edges, and beautifully veined. A stove species from Ceylon.

C. Smithii. This has somewhat a slender stem,

and growing in its native haunts about twenty feet high, with beautifully arching fronds, of a very light pleasing green colour, tri-pinnate, and with delicate cut segments, the crown and stipes are profusely clothed with bright reddish brown scales; this will grow in a green-house, but will develop itself much better in heat. Native of New Zealand.

C. speciosa. See *Hemitelia speciosa*.

CYCLODIUM.

Cyclodium, Presl from *kiklos*, a circle. A genus with only one species, and that is closely allied to *Cyrtodium*, it has a partial decumbent rhizome; and thick leathery fronds, with an orbicular indusium, it does best in a mixture of peat and sand, with plenty of water when growing.

C. confertum, *Aspidium confertum*. A stove species, having both fertile, and sterile fronds, the both pinnate, the former linear lanceolate, and contracted, with large sori covering the underside, and enclosed in a circular indusium; the barren fronds having broad pinnae about six inches long; the plant growing from eighteen inches to two feet high, and very light green colour. Native of Guiana.

CYCLOPELTIS.

Cyclopeltis, J. Smith, from *kylkos*, a circle, and *pelte*, a shield. There is only one species of this genus found in our gardens; and appears to be closely allied to *Lastrea*, it grows well in fibrous peat, and loam, with plenty of sand.

C. semicordata, *Aspidium semicordata*, *Lastrea semicordata*. This has pinnate fronds, from one to two feet long, the pinnae sessile, from three to five

inches long, some-what falcate in form, and auriculate; and dark green colour. A handsome stove species, from the West Indies.

Cyclophorus. See *Niphobulus*.

CYRTOGONIUM.

Cyrtogonium, *J. Smith*, from *kyrtos* curved, and *gonu*, knee, in reference to the sudden bend, or angle of the small veins. This is separated from *Acrostichum*, on that account all the species require a stove temperature; and grow well in fibrous peat and sand.

C. crispatulum, *Pœcilopteris crispatulum*. A stove species, growing about two feet high, with both barren and fertile fronds; the former in the hollow of the lobes, has a short thorny substance; crenated at the edges, and of a very bright green colour, the fertile fronds are shorter; and the stipes are sparingly clothed with scales, and growing on a creeping rhizome. Native of Ceylon.

C. flagelliforme, *Pœcilopteris flagelliforme*. This grows about a foot high, with narrow, arching, simple fronds, and running very narrow at the top, and forming young plants at the ends of the fronds. A stove plant, from West Indies.

C. repandum, *Acrostichum repandum*. A stove species growing about a foot high, with simple fronds, the barren ones spreading, the fertile ones erect, and produces young plants on the fronds. Native of Java.

CYRTOMIUM.

Cyrtomium *Presl*, from *krytos*, curved, referring to the form of the sori. A small genus of very handsome ferns, all of which prove to be hardy, in sheltered situations, *C. falcatum* is a grand plant for the hardy

fernery, all of the species grow well in a mixture of loam, and peat, with an addition of silver sand.

Cyrtomium anomophyllum. See *C. Fortuneii*.

C. caryotideum. A green-house species, having pinnate fronds, of a light green colour; the pinnæ large, auriculated at the base, of rather a drooping habit, and thinnish texture. Native of Nepaul.

C. falcatum. A fine hardy species, from one to two feet high, and produces a stout crown, densely clothed with brownish scales; from which rises the pinnate fronds, the pinnæ of an elliptical lanceolate form, and of an intense dark green colour, and both rachis and stipes are covered with light brown chaffy scales. Native of Japan and China. If left out of doors it is deciduous.

C. Fortuneii, *C. anomophyllum*, *C. orientale*. This has pinnate fronds about two feet long, and numerous pinnæ about two inches long, somewhat of a falcate lanceolate form, and slightly eared at the base, of a thin texture, and a dull dark green colour. A green-house species, from Japan.

C. orientale. See *C. Fortuneii*.

Cyrtophlebium. See *Campyloneuron*.

CYSTOPTERIS.

Cystopteris named by *Bernhardi* an Italian botanist, from *kystis*, a bladder, and *pteron*, a wing. Some of the species of this genus are among some of the oldest inhabitants of our gardens; *C. bulbifera* dates from the year 1638, all the species are hardy, and deciduous, they all grow well in a loamy soil, and are well worth a place in the hardy fernery.

Cystopteris bulbifera, *Aspidium bulbiferum* *Polypodium bulbiferum*. This is a very pretty deciduous

fern, having bi-pinnate fronds, the segments of a lightish green colour, and deeply cut, of an herbaceous texture, and produces little bulbs, on the under side of the fronds, the stipes and rachis are of a reddish colour; this is one of the oldest exotic species in this country as it appears to have been introduced about the year 1638. A hardy species, from North America.

C. tenuis. This also is an elegant little fern from North America, and grows from six to nine inches high, with bi-pinnate fronds of an ovato lanceolate form, and dark green colour. A hardy species.

Danæa. See some of the species of *Angiopteris*.

Darea. See *Asplenium*.

DAVALLIA.

Davallia, *Smith*. Named in honour of Edmund Davall, a Swiss botanist. A genus with several grand species, which should be grown in every fernery, however small; they have all creeping rhizome; some of which add materially to their beauty; they are widely distributed, but the majority are from the East Indies and adjoining Islands, *D. Canariensis* is the well-known hare's foot fern, while *D. bullata* is also known as the squirrel's foot fern, some of the species make grand basket plants, and *D. Mooreana* of recent introduction makes a grand exhibition plant, *D. Mariesii*, also of recent introduction, is a grand plant, and a Native of Japan; all the species do well, for cutting for decorating, and last a long time without withering; they grow well in fibrous peat, and sand, and should be slightly elevated, above the rim of the pot; the rhizome should be pegged on the surface, and not buried, *bullata* is a deciduous species, all the others are ever-

green, some of the species, are well adapted for Wardian Cases.

D. aculeata, *Adiantum aculeatum*, *Odontosoria aculeata*, *Stenolomia acuminata*. A scandent growing species with bitri-pinnate fronds, of a light green colour, the segments rather wedge-shaped, and somewhat lobed, the rachis is furnished with short spines, slightly recurved. A stove species, from Jamaica.

D. affinis. See *Acrophorus affinis*.

D. alpina. See *Humata alpina*.

D. bullata. A deciduous species with fronds nine or ten inches long and gracefully tapering to a point, the colour a rich shining green, and tri-pinnate, and borne on a creeping rhizome, which is clothed with scales of a reddish, brown colour. A stove species, from the East Indies.

D. canariensis, *Polygodium lusitanicum*, *Trichomanes canariensis*. A green-house species, with tri-pinnate fronds, of a dullish green colour, and triangular form, and about a foot long; it has a stout creeping rhizome, clothed with light-brown chaffy scales; and is the species that is generally known as the hare's foot. Native of the Canary Islands, &c.

D. caudata. See *D. solidu*.

D. checropiifolia. See *Leucostegia checropiifolia*.

D. ciliata. See *Leucostegia hirsuta*.

D. decora. See *D. dissecta*.

D. dissecta, *D. decora*. This may be called a large variety of *D. bullata* by its appearance, but the fronds of this are evergreen, and grow from one to two feet high, the scales on the rhizome, are of a light-brown colour. A splendid stove species, from Java.

D. divaricata. See *D. polyantha*.

D. elata. See *D. elegans* and *D. polyantha*.

D. elegans, *D. elata* of some. An elegant stove species, with fronds several times divided, from one to two feet long, or more, and of a bright shining green colour, and produces vigorous-growing fronds, on a stoutish rhizome. Native of Malay Islands.

D. Fijiensis major. A large-growing species, with graceful arching fronds, of a leathery texture, and finely-cut pinnules, of a beautiful dark green colour. A stove species, from the Fiji.

D. hemiptera, *Acrophorus hemiptera*. A pinnate species, with fronds six to twelve inches long, of a dark green colour, and thinnish texture, the pinnæ finely-cut on the upper margin. A green-house species, from Borneo.

D. heterophylla. See *Humata heterophylla*.

D. hispida. See *Acrophorus hispidus*.

D. immersa. See *Leucostegia immersa*.

D. Lindleyana. See *D. solida*.

D. lonchitidea. See *Microlepia platyphylla*.

D. Mariesii. This has fronds about a foot high, of a triangular form, and tri-pinnate, the sterile fronds, of a darker green than the fertile ones, they are on a creeping rhizome, about a quarter of an inch thick, which is clothed with ash-brown coloured scales. A green-house species, and lately introduced from Japan by Messrs. Veitch.

D. Moorcana. A strong-growing stove species, with the fronds two to three long, and one to two feet broad, of a pale green colour, and four times divided into blunt oblique segments, the fronds gracefully arching, the stipes are pale coloured, and growing on a short rhizome, clothed with dark brown scales. Native of Borneo.

D. Novæ Zealandica. See *Acrophorus hispidus*.

D. ornata. A strong-growing stove species, with the fronds tripinnately divided, from one to three feet long, the pinnae large, and broad, and has a stout woolly rhizome. Native of Singapore.

D. parvula. A pretty little species, with the fronds about an inch long, and nearly as broad at the base, of a dark green colour, and finely cut, and are borne on a very slender creeping rhizome. A stove species, from Borneo and Singapore.

D. pedata. See *Humata pedata*.

D. pentaphylla, *D. triphylla*. This grows about a foot high, of a shining green colour, and generally divided into five segments, hence its name, the pinnae are three or four inches long, and of a thickish texture. A green-house species, from the Malay Islands.

D. platyphylla. See *Microlepia platyphylla*.

D. polyantha, *D. divaricata*, *D. elata*. A strong-growing stove species, with quadri-pinnate fronds, two to four feet long or more; and the young fronds, are of a beautiful red colour, which changes with age, to a dark shining green, which contrasts well with the young fronds. Native of Java.

D. pulchra. See *Leucostegia pulchra*.

D. pyxidata. This species produces an upright rhizome, which grows to the height of eighteen inches, or more; the fronds are borne on the sides of the rhizome, and of a triangular outline, and leathery texture, and bright green colour. A green-house species, from Australia.

D. scabra. See *Microlepia scabra*.

D. strigosa. See *Microlepia strigosa*.

D. solida, *D. caudata* *D. Lindleyana*. A stove species, having tri-pinnate fronds, from one to two

feet high, the pinnæ broad, and stout, and of a deep green colour, and has a creeping rhizome, clothed with long brown scales. Native of the Malay Islands.

D. tenuifolia, *Odontosoria tenuifolia*. This grows about eighteen inches high, of an elegant habit, and cut into a multitude of light green segments, of a cuneate form, the frond drooping over on the top, in a graceful manner and of a triangular outline. A stove species, from the Isle of Luzon and several other places.

D. tenuifolia stricta, *Odontosoria tenuifolia stricta*. A variety of the preceding, which grows much stronger; and makes a beautiful specimen, introduced from the Pacific Islands.

D. triphylla. See *D. pentaphylla*.

D. Tyermanii, *Humata Tyermanii*. A stove species, with tri-pinnate fronds, six to nine inches high, and triangular form, of a thickish substance, and dark glossy green colour; the rhizomes are slender, and clothed with white chaffy scales, which gives it a silvery appearance, and contrasting well with the fronds. Native of West Africa.

D. villosa. See *Microlepia scabra*.

DENNSTÆDTIA.

Dennstœdtia, *Bernhardi*. A genus of strong-growing plants, with both temperate, and tropical species, of very quick growth; and do well planted out, in a fernery, and one or two species do well for decorative plants, for the house; they thrive well in a mixture of loam, and peat, they are closely allied to *Sitilobium*, and are easily propagated, by dividing the plants, and also by spores. By some authors, these have all been included with *Dicksonia*.

D. adiantoides, *Dicksonia adiantoides*, *Sitilobium adiantoides*. A strong-growing, and very handsome species, with the fronds many times divided, and from two to four feet high, the pinnules are obtuse, and bright light green colour, with large sori, and abundantly produced. Native of Tropical America, but will do well in a cool house.

D. anthriscifolia. This produces fronds, two to four feet high, of a bright shining green colour, bi-tripinnately divided into broad obtuse segments, and profusely covered with bright-reddish brown sori. A stove species, from Tropical America.

D. cicutaria. A handsome and strong-growing species, having tri-pinnate fronds, of rather a triangular form, and attaining to the height of four feet, and of a bright green colour; the fertile fronds are slightly contracted, this is one of the fastest growing of all the species. A stove species, from Tropical America.

D. davallioides. A graceful-looking species, producing fronds, from two to three feet high, and about a foot wide, bi-tripinnately divided into small toothed segments, of a very dark green colour, and slightly pubescent. A green-house species, from Australia.

D. davallioides Youngii. This variety grows in this country, to the enormous height of eight or nine feet high, with a creeping rhizome, as stout as a man's finger, and throwing up fronds at intervals, spreading and ovate in outline, and decomposed; the pinnae eighteen inches long, the pinnules five to six inches long, of an herbaceous texture; the stipes are stout, and dark-brown below, and golden-brown above and quite smooth. Native of Australia.

D. Moluccana, *Sitilobium Moluccana*. A warm green-house species, the fronds growing, from one to

three feet high, of a triangular form, and tri-pinnately divided, of a firm texture, and bright green colour; the stipes, and rachis, are armed with a few spines. Native of the Malay Archipelago.

D. pavoni. This is a strong-growing stove species, having bi-pinnate fronds, lanceolate in form, and pinnatifid pinnae, and very obtuse pinnules, of a dark green colour, and growing from one to three feet high. Native of Peru, and other places.

D. punetilobula. See *Sitilobium punctilobulum*.

DEPARIA.

Deparia Hooker et Greville, from a cup, referring to the form of the involuere. A very handsome genus, with one species, the chief characteristic point is the sori exserted, it grows well in a mixture of loam, peat, and sand, and an abundant supply of water, when growing.

D. Moorei. See *Trichocarpa Moorei*.

D. prolifera. This has a creeping rhizome, from which grows the bi-pinnatifid fronds, from one to three feet high, of a triangular form, and light green colour; the sori are placed on the margin of the fronds, attached by little foot stalks, and the fronds bear young plants, sometimes on the points. A stove plant, from the Sandwich Islands.

DICKSONIA.

Dicksonia. *L. Heritier*. In compliment to James Dickson, a famous cryptogamic botanist. A genus of handsome tree ferns, most of which are natives of temperate climates, where they are found growing in deep, and shaded ravines, to the height of forty or fifty feet high, and some of a massive size, and beautiful fine crowns, of pleasing green fronds. Their

chief distinction as a genus, is the coriaceous fronds, and the two valved involucre, which is placed on the end of a vein near the margin of the pinnae. They are best grown in a mixture as recommended for tree ferns, and are propagated by spores.

D. adiantoides. See *Dennstaedtia adiantoides*.

D. antarctica, *Balantium antarctica*, *Cibotium Billardium*. This has a tall and stout stem, which, in its native haunts reaches to the height of thirty or forty feet; on the top of which grows tri-pinnate fronds, of a lanceolate form and stiff texture, from three to ten feet long, the young fronds arch over in a graceful manner, which with age become more drooping. The crown of the plant is clothed with a hairy-like pubescence. A green-house species, from Tasmania, and Australia.

D. anthriscifolia. See *Dennstaedtia anthriscifolia*.

D. arborescens, *Balantium arborescens*, *Balantium auricomum*. The stem of this species grows from nine to twelve feet high, and often branched, it has tri-pinnate fronds, of a coriaceous texture, with very large pinnae, the segments rounded and obtuse, and of a light green colour, the crown and stipes are densely clothed with rusty-coloured soft hairs. A stove species, from Diana's peak, in St. Helena.

D. Berteroana. A fine tree fern, which, in its native habitat grows several feet high, with a moderate stout stem, the fronds of a bright green colour, and graceful arching habit, of a coriaceous texture, and tri-pinnately divided into five segments, of an obtuse form. A stove species, and indigenous only to Juan Fernandez.

D. Chamissoi. See *Cibotium chamissoi*.

D. cicutaria. See *Dennstaedtia cicutaria*.

D. culcita. See *Balantium culcita*.

D. chrysotricha. A handsome species, of a very elegant form, having circles of finely cut feathery fronds, arching gracefully over the lower ones, of a weeping habit, and bright green colour, the stipes are clothed with a golden brown fur-like covering. A stove species, from Java.

D. davallioides. See *Dennstædtia davallioides*.

D. deplancheii. An entire distinct species, with somewhat a slender stem, producing a large head, of tri-pinnate fronds, of a coriaceous texture; and an intense deep green colour, the stipes densely clothed with long cinnamon colour hairs. A green-house species, from New Caledonia.

D. fibrosa. A fine temperate species, with stems growing twenty feet high, or more; although the stems, in this country, are rarely to be seen more than seven or eight feet high; it somewhat resembles *Antartica*, but the stems are thicker in proportion than that species, and are profusely clothed with fibrous roots, which cover the base of the old fronds; it has tri-pinnate fronds, which are very broad for the length, the pinnules are of a dark green colour, and turning up at the ends, which gives it a bristly appearance. Native of New Zealand.

D. glauca. See *Cibotium glaucum*.

D. Hilli. See *D. Youngii*.

D. lanata. This is used by some as a synonym of *Antarticta*, but they are different species, this has bi-pinnate fronds, of a coriaceous texture, the pinnules are broad, and deeply pinnatifid, and of a dark green colour; the stipes pale brown, and armed with short spines, and densely clothed with pale woolly scales. A green-house species, from New Zealand.

D. Menziesii. See *Cibotium Menziesii*.

D. Menziesii var *pruinatum*. See *Cibotium Menziesii*.

D. Moluccana. See *Dennstaedtia Moluccana*.

D. pavoni. See *Dennstaedtia pavoni*.

D. pilosinacula. See *Sitolobium punctilobium*.

D. pubescens. See *Sitolobium punctilobium*.

D. punctilobula. See *Sitolobium punctilobium*.

D. Sellowiana. A stove species, having a great resemblance to *Antarctica*, but the greatest distinctness of this species is the peculiar bluntness of the pinnæ; the fronds are smooth, and dark green in colour. Native of the Organ Mountains, in Brazil.

D. splendens. See *Cibotium Chamissoi*.

D. squarrosa. A tall and slender stem species, which produces a fine head of tri-pinnate fronds, which form a flat surface, like a table, and are three to six feet long; of a dark dull green colour on the upper side, and paler beneath; the stipes are black, and spiny, the rachis rough, and hairy, the base of the stipes remain on the stem, which gives it a rough like appearance, and occasionally forms young plants on the side of the stem. A green-house species, from New Zealand.

D. Yonngii, *D. Hilli*. A slender stem species, in the way of the preceding; but the texture is much softer, and the segments smaller. A green-house species, from New South Wales.

Diclosodon. See *Lastrea*.

DICTYMIA.

Dictymia, *J. Smith*. From *diktyon*, a net, referring to the netted form of the fronds, and separated from *Polypodium* on that account; it grows well in a

mixture of peat, and loam, with sand to make it open ; it makes a nice plant for a Wardian case.

D. attenuata. A green-house species, with fronds, from nine to twelve inches long, simple, of a linear form, and leathery texture, of a deep green colour, and very smooth, and has a creeping rhizome. Native of New South Wales.

Dictyoglossum. See *Hymenodium*.

DICTYOGRAMMA.

Dictyogramma, *Fee*. From *dikyton*, a net, and *gramma*, writing, in reference to the form of the sori, being all in a netted manner ; there is only one species, and a variegated form, it is easily propagated, by dividing the plants, and also by spores, and grows well in a mixture of peat, loam, and a little sand.

D. Japonica, *Coniogramma Japonica*, *Gymnogramma Japonica*. A green-house species, growing about two feet high, having the fronds bi-pinnate at the base, and pinnate on the upper part ; the pinnae from six to nine inches long, of a lanceolate form, and rather coriaceous in texture, and of a dark shining green colour, with the veins showing very prominent. Native of Japan.

D. Japonica variegata, *Gymnogramma Japonica variegata*. A variegated form of the preceding, it is marked on each side of the midrib of the pinnae, with a light yellowish, green, tessellated, and of a very free growth. This also is a native of Japan.

DICTYOXIPHIIUM.

Dictyoxiphium, *Hooker*. From *diktyon*, a net, and *xiphion*, a sword, in reference to the venation and shape of the frond. This genus is very closely related

to *Lindser*, it grows well in a mixture of peat, and sand. *D. Panamense* is a handsome species, and well worth cultivating.

D. Panamense. A stove species, having an erect caudex, with simple fronds, of a linear lanceolate form, from one to two feet long; the fertile ones much narrower than the barren ones, and of a shining dark green colour; the sori brown, and placed on the margin, the stipes scaly. Native of Panama.

DIDYMOCHLÆNA.

Didymochlæna, *Desvaux*. From *didymios*, double, and *chlaina*, a cloak, referring to the double covering of the spore cases. A pretty genus, with only one species in cultivation, and that has a multiplicity of synonymes; it does well in a mixture of peat, of a fibrous nature, and silver sand, it requires plenty of water when growing, and, although introduced into this country, for nearly fifty years, it is not seen in collections as often as it should be.

D. lunulata. See *D. truncatula*.

D. sinuosa. See *D. truncatula*.

D. truncatula, *D. lunulata*, *D. sinuosa*, *Diplazium pulcherrimum*, *Aspidium squamatum*, *A. truncatum*. A stove species, having a stout and erect stem and rather arborescent, the fronds are broadly lanceolate, and bi-pinnately divided into pinnules, nearly an inch long, and of an oblique rhomboid form, nearly sessile, and articulated with the rachis, and overlapping each other; when young are of a dull reddish-brown tinge, which with age changes to a dark heavy green colour; the stipes and rachis are densely clothed with long brown chaffy scales. Native of the Malay Islands and various other places.

Dicostegia. See *Marattia*.

Digrammaria. See *Callipteris*.

DIPLAZIUM.

Diplazium, Swartz. From *diplazo*, double, in allusion to the indusia being double. This genus is closely allied to *Asplenium*, and its principle distinction is the double sori; they are of easy culture, growing well in a mixture of loam, peat, and sand, and are easily propagated by spores, and divisions, some are well adapted for Wardian cases; *pubescens* is hardy and deciduous. Several of the species are widely distributed.

D. acuminatum. See *D. sylvatica*.

D. alternifolium, *Adiantum alternifolium*, *D. integrifolium*. A stove species, growing from one to two feet high, having pinnate fronds, and ovate pinnae, from five to six inches long, and very dark green colour, the veins thickly covered with dark brown sori. Native of Java.

D. arborescens. A warm green-house species, growing about three feet long, and, with age, forms, a small upright stem; the fronds are bi-pinnate, the pinnules cut at the edges; of a pleasing green colour, and tapering to a point; the stipes are densely clothed with brown chaffy scales. Native of St. Helena.

D. coarctum. This grows about eighteen inches high, having bi-pinnate fronds; the pinnae cut at the edges and thickly set on the rachis, of a darkish green colour, and has an erect caudex. A stove species, from Brazil.

D. decussatum, *Asplenium decussatum*, *A. Japonicum*, *A. proliferum*. A rather coarse-growing plant, having pinnate fronds, from two to three feet long,

covered with a hairy pubescence, and has a creeping caudex. A stove species, from Brazil.

D. esculentum. See *Callipteris esculentum*.

D. Franconis. A stove fern, having fronds of a triangular form, and decomposed; from two to three feet high, and one to two feet broad; of a dark shining green colour, and finely divided. Native of Mexico and other places.

D. grandifolium. This grows from one to two feet high, having pinnate fronds, with the pinnae alternate, and about four inches long, and one-and-half inches broad; the top of the fronds only pinnatifid and of a bright shining green colour, this will do in a warm green-house. A native of Tropical America.

D. integrifolium. See *A. alternifolium*.

D. juglandifolium. A stove species, growing from two to three feet high, having pinnate fronds, and large acuminate pinnae, slightly cut at the margin, and from six to eight inches long, and two or three inches broad, and of a dark green colour, it produces many crowns, by which way it can be easily propagated. Native of South America.

D. lanatum. A simple frond species, growing from nine to fifteen inches high; of a linear lanceolate form, and dark green colour; and clothed with scales at the base of the stipes; and very conspicuous sori on the under side. Native of China and Japan.

D. Malabaricum. See *Callipteris Malabarica*.

D. otites, Asplenium otites. This grows from eighteen to twenty-four inches high, and pinnate, the pinnae deeply cut at the margin, of a lively green colour, and has scaly stipes, placed on an erect caudex. A stove species, from Brazil.

D. Plantagineum, Asplenium plantagineum. This

has simple fronds, and grows about a foot high, and two inches broad, of a dark shining green colour, and produces young plants, at the base of the fronds, and has a many-headed crown. A stove species, from the West Indies.

D. pubescens. A hardy deciduous species, with fronds from twelve to eighteen inches long, and pinnate, the pinnæ pinnatifid, and of a dark green colour, and thickish texture, and densely clothed with short soft hairs. Native of North America.

D. pulcherrimum. See *Didymochloena truncatula*.

D. Shepherdii, *Asplenium Shepherdii*. A stove fern from one to two feet high, and pinnate, of a bright green colour, and very broad; it produces a many-headed crown which can be easily divided. Native of Jamaica and other places.

D. Striatum, *Asplenium striatum*. This has bi-pinnate fronds, from three to four feet high, with the pinnæ a foot long; the pinnules toothed, the stipes and rachis clothed with fine hairs, and are borne on an erect caudex. A stove species, from Jamaica.

D. subulatum. A stove species, having fronds three to four feet high, tri-pinnate at the base, and bi-pinnate towards the top; the rachis winged, and has an upright caudex, growing from one to two feet high. Native of South America.

D. sylvaticum, *Callipteris sylvaticum*, *Asplenium acuminatum*, *D. acuminatum*. This grows about thirty inches high, the fronds of rather a triangular form, and pinnate, the pinnules almost round, and cut at the edges, the stipes covered with dark brown scales, and has a many-headed crown. A stove species, from Ceylon.

D. thelypteroides, *Asplenium thelypteroides*,

Athyrium thelypteroides. A hardy species, from twelve to eighteen inches high, and having bi-pinnatifid fronds, of a light green colour, and herbaceous texture. A deciduous species, from North America.

D. Thwaitesii. A pretty species with fronds ten to fifteen inches high, and bi-pinnatifid, of a light green colour, and hairy stipes. A stove species, from Ceylon.

D. zeylanicum, *Asplenium zeylanicum*. This grows from nine to fifteen inches high, with erect fronds, and pinnated at the lower half of the frond, and pinnatifid on the upper, of a pleasing green colour, and the stipes densely clothed with scales. A stove species, from Ceylon.

Disphenia. See *Cyathea*.

DOODIA.

Doodia, *R. Brown*. Named in honour of Samuel Doody, a London apothecary, and one of the earliest British cryptogamic botanists. A genus of green-house ferns, of easy culture, and very accommodating, growing well in the house, and Wardian cases, and do well in a mixture of loam, peat, and sand, they are easily propagated by divisions, and spores, *aspera* was introduced, about the year 1808, from New Holland.

D. aspera. A green-house species, having pinnatifid fronds, growing erect, the pinnæ sickle-shaped, and serrated, at the edges, of a very dark green colour, and from six to nine inches high, of a very rough and rigid texture. Native of New Holland.

D. aspera corymbifera. A pretty variety of the preceding, with the apex of the fronds divided and tasseled. Of garden origin.

D. blechnoides, *D. maxima*. This has a similar appearance to *aspera*, but the fronds are larger, and, in some instances, reach the height of eighteen inches, and are broadly lanceolate and rigid, the stems densely clothed with black scales, and are borne on an upright caudex. Native of Australia.

D. caudata, *D. rupestris*, *Woodwardia*, *caudata*. This grows from six to nine inches high, and having two distinct classes of fronds, fertile and barren, the former has the pinnæ contracted and cordate at the base, the latter cordate at the base, and oblong, of a smooth-looking green colour. A greenhouse species, from New Caledonia.

D. caudata confluens, *D. linearis*. The sterile fronds of this variety resemble the species, but the fertile ones are confluent and more contracted. Native of New Caledonia.

D. caudata monstrosa. A branched and crested form of *caudata*, its most distinct feature being the tasseled pinnæ. A green-house plant, of garden origin.

D. dives. A fine and distinct species, with fronds twelve to eighteen inches high, and pinnate, of a dark green colour, the lower pinnæ have stems and auriculate on both edges, the upper pinnæ shorter, and sessile, the stipes black and slightly scaly, with black and prominent sori. A stove species, from Java.

D. linearis. See *D. caudata confluens*.

D. lunulata. See *D. media*.

D. maxima. See *D. blechnoides*.

D. media, *D. lunulata*. A green-house species, with fronds, the lower part pinnate, and the upper pinnatifid, of a lanceolate form, from ten to fifteen inches long, slender and arching in habit; the young fronds of a pinkish colour, and, when mature, of a dark green, the

pinnae roundish and toothed, and edged with little spines. Native of New Zealand.

D. media crispa. A variety of the preceding, having the pinnae crisped. Of garden origin.

D. Virginica. See *Woodwardia Virginica*.

DORYOPTERIS.

Doryopteris *J. Smith*, from *dory*, a spear, and *pteris*, a fern. A genus separated from *Pteris* on account of the veins being netted, while in that genus the veins are free, the sori are placed on the margin, they are all of a compact habit, *nobilis* is a grand species, with variegated fronds, all of the species grow in peat and sand, with chopped *Sphagnum* added, some grow well in Wardian cases, they are increased by divisions and spores.

D. collina, Pteris collina. A stove species, growing from six to nine inches high, having palmate fronds, about four inches wide, of a thickish texture, and shining dark green colour. Native of Tropical America.

D. geraniifolium. See *Pteris geraniifolia*.

D. hastata. See *Cassabiera hastata*.

D. nobilis. A handsome species, growing about a foot high, the fronds entire and arrow-shaped, with a broad band of white up the centre, when young, but when the plants get older, the fronds become palmate, and the centre of each segment, retains the white band, of a bright green colour above and paler beneath. A stove species, from Brazil.

D. palmata. This grows about a foot high, with the fronds palmate, and deeply cut, about four inches wide and bright green colour, it produces young plants at the base of the fronds, where they are joined to

the stipes. A green-house species, from Tropical America.

D. sagittæfolia. This has simple fronds, erect, about a foot high, and, as the specific name implies, is of an arrow shape, and rather leathery texture, of a bright green colour, and black stipes. A stove species from Brazil.

DRYMOGLOSSUM.

Drymoglossum Presl from *drymos*, a forest, and *glossum*, a tongue. A genus of small-growing plants, with a wiry creeping rhizome, the chief character is the irregular compound veins, and marginal sori, they should be grown in a mixture of peat and sand, and easily increased by divisions.

D. lanceolatum. This grows from nine to fifteen inches high, having simple fronds, and contracted at the apex, where the sori commence, which is placed in a continuous line, along the margin, and has a small creeping rhizome. A stove species, from Jamaica.

D. piloselloides. A small-growing species, having simple fronds only a few inches long, the sterile ones ovate, the fertile ones very narrow, this is amongst some of the smallest of ferns, and does well on a block or piece of cork. A stove species, from the East Indies.

D. spatulatum. This also is a small-growing species, with simple fronds, of which the barren ones are longish, and spatula-like, the fertile ones longer, and narrow, and has a small creeping rhizome. A stove species, from the East Indies.

DRYNARIA.

Drynaria, Bory. From *dryinos*, the oak, referring to the form of the species on which the genus was formed. A rather large genus with the principal character being

the naked sori, and crooked veins, they have rather large and fleshy rhizomes; all are natives of hot countries and require a stove temperature, they grow best in fibrous peat, and sand, and are allied to *Polypodiums*.

D. capitellata, *Pleuridium juglandifolium*, *Polypodium capitellatum*, *Polypodium juglandifolium*, *Pleopeltis juglandifolium*. A neat-growing species, with fronds about a foot high, and pinnate, the pinnae ovate, with a thick edge, of a whitish colour; the sori large and round of a brownish colour, placed in a row each side of the main stem, at regular distances, and has a creeping rhizome. A stove species, from the East Indies and other places.

D. coronans. A large-growing species, with fronds four to five feet long, and pinnatifid, and attenuated toward the top, and cordate at the base, and nearly two feet wide at the base, and placed in a circular manner on a thick scaly and fleshy rhizome. A stove species, from the West Indies.

D. crassifolia, *Anacetium crassifolium*. This grows from two to three feet long, with simple, long lance-shaped fronds, of a coriaceous texture, and contracted at the base, with large brown sori, placed between the primary veins. A stove species, from the West Indies.

D. diversifolium, *Polypodium diversifolium*, *Polypodium proliferum*, *Polypodium rigidulum*, *Goniopteris diversifolia*, *Goniopteris vivipara*. This has a multiplicity of Synonymes; it is a green-house species, and produces fertile fronds, two to three feet long, of a light green colour, and pinnate, the barren ones are much shorter, and cordate at the base, and lobed on the upper edge, the sori is deeply embedded in the frond, so as to raise the upper surface. Native of the East Indies and elsewhere.

D. Fortuneii. This grows a foot high or more, and has simple fronds, of a narrow lanceolate form, and leathery texture, of a bright green colour, and growing on a creeping rhizome. A greenhouse species, from China.

D. hemionitis. See *Polypodium membranaceum*.

D. irioides. See *Microsorium irregulare*.

D. longipes. A tall-growing species, having pinnate fronds, about three feet long, and leathery texture, the pinnæ grow laterally, and have very broad segments, towards the base, the sori brownish yellow, and large and produced in two rows, and has a creeping rhizome. A stove species from the East Indies.

D. melanacocca. This grows from two to three feet high, or even more, the fronds pinnatifid, of a graceful habit, the pinnæ distant from each other, and rather sharp pointed, of a light green colour, and has a creeping rhizome. A stove species, from the East Indies.

D. morbillosa, *Polypodium morbillosa*, *Polypodium heracleum*. A strong growing-species, whose fronds, in some instances, attain to the height of seven or eight feet, but oftener seen three or four feet, the fronds are pinnatifid, stiff, but slightly curving, and light green colour, and closely dotted underneath, with the sori. A stove species, from the Malay Islands.

D. musæfolia, *Acrostichum alatum*, *Pleopeltis musæfolia*, *Polypodium musæfolium*, *Polypodium microsorium*. A very beautiful species, growing from two to four feet, and has simple fronds, of a pleasing light green colour, and reticulated, with the much darker veins, which is very distinctly seen, it is from four to six inches wide, and rather obtuse at the top. A stove species, from the Malay Islands.

D. quercifolia, *Gymnopteris quercifolia*, *Polypodium quercifolia*. A stove species, with the sterile and fertile fronds very distinct, the former oblong ovate, and cordate at the base, sessile, and jagged at the edges, and five or six inches long, the fertile ones pinnatifid, with narrow segments, and thickish edges. A stove species from the Isle of Luzon and other places.

D. vulgaris. See *Polypodium phymatodes*.

Dryomensis. See *Polypodium*.

ELAPHOGLOSSUM.

Elaphoglossum, *Schott*. From *elephas*, an elephant, and *glossa*, a tongue, in reference to the form of the fronds. A genus with simple fronds, some of which are clothed with chaffy scales, and these should not be syringed, several of the species are well adapted for baskets. *E. Herminieri* is one of the prettiest species, they all grow well in a mixture of peat, sand, and chopped sphagnum, and are best increased by dividing the plants.

E. brevipes. See *E. callæfolium*.

E. callæfolium, *E. brevipes*. This has simple fronds, both barren and fertile, the former rather ovate acuminate, and undulated, the latter more narrower, and erect, both of a deep green colour, and has a small creeping rhizome. A stove species, from Java.

E. conforme. The sterile fronds of this species are of an ovate form, and growing about a foot high, and simple; the fertile ones are much smaller; this also has a creeping rhizome, clothed with scales. A warm green-house species, from the Cape of Good Hope.

E. crassinerva. The barren fronds of this species grow about two feet high, and rather of coriaceous texture, undulated, and of a dull green colour, the fertile fronds grow only a foot high; and has a short creeping rhizome. A stove species, from the West Indies.

E. cuspidatum. A rather dwarf species, the barren fronds, six or seven inches high, of a linear oblong shape, and entire, and densely clothed on both sides, with scales, as well as the stipes; the fertile fronds are smaller, and the underside entirely covered with the sori. A stove species, from the West Indies.

E. Dombeyanum. This has the barren fronds, thickly clothed with stellate scales, and are of a blunt linear form, the fertile ones have stipes, half the length of the fronds, and more pointed; and has a creeping rhizome. A stove species, from South America.

E. L' Herminieri. The fronds of this species are of a bright lustrous blue colour; and grow from one to three feet long, and two to three inches broad, and rather pendulous, of a leathery texture, and simple. A stove species, from the West Indies.

E. longifolium. This also [is a stove species, with the fronds two feet long, and of a lanceolate form, and rather undulated at the edges, and narrower at the base; the fertile and sterile fronds are of the same form, and are borne on a creeping rhizome. Native of the West Indies.

E. piloselloides. A pretty dwarf-growing species, with the fronds three or four inches high, entire and spatulate in form, and densely covered with longish hairs. A stove species, from Tropical America.

E. scolopendrifolium. The fronds of this are

undulated at the edges, and from twelve to eighteen inches long, and of an oblong lanceolate form, the fertile ones are smaller, and more erect, and pale green in colour; the stipes are about six inches long and, as well as the margin of the fronds, are clothed with brown chaffy scales. A stove species, from Brazil.

E. squamosum. A curious-looking species, with the fronds about an inch wide, and four to six inches long, and densely clothed on both sides, with scales, which, when young, are of a very light colour, changing as they get matured to a brownish red; the fertile fronds are narrower than the sterile, and not so long. A stove species, from Tropical America and the West Indies.

E. villosum. The sterile fronds of this species grow about a foot long, of an oblong lance-shaped form, and clothed with long shaggy hairs; the fertile ones are narrower, and much shorter. A stove species, from the West Indies.

E. viscosum. This will do well in a green-house, it has fronds from one to two feet long, and very narrow, rather pendulous, and scaly; of a greyish colour, and of symmetrical growth. Native of Philippine Islands.

Ellobocarpus oleraceus. See *Ceratopteris thalictroides*.

Eriochasma. See *Cheilanthes*, and *Nothochlona*.

EUPODIUM.

Eupodium. From *eu*, good, and *pous*, a foot, referring to the fleshy stipes. This genus is closely allied to *Angiopteris* and *Marattia*, its principal distinction, being the sporangia borne on little footstalks

or stems, it does well with the same treatment as recommended for *Angiopteris* and *Marattia*.

E. Kaulfussii. This very much resembles *Marattia alata*, but the fructification is very different, the fronds grow several feet high, and are bi-tripinnate with smallish pinnules, of a pale green colour. A stove species, from Brazil.

FADYENIA:

Fadyenia Hooker. Named after Dr. Fadyen, author of a flora of Jamaica. A very pretty genus, with only one species, and that is best grown under a bell glass, in peat, loam, and sand, it also is a good plant for a Wardian case, they are best propagated from the little plants that are formed on the apex of the fronds.

F. prolifera, *Aspidium proliferum*. The fertile fronds of this species grow about six inches long, simple and of a lanceolate form, with large reniforme sori on the under side; the sterile ones are prostrate, or nearly so, and produce young plants at the points. A stove species, from Jamaica.

FEEA.

Feea Bory. In honour of M. Fee, a professor of botany, at Strasburgh. A genus separated from *Trichomanes*, on account of the fertile fronds being contracted, and quite different from the sterile ones; it belongs to the class of ferns known as filmy ferns. For management, see chapter on filmy ferns.

F. spicata, *Trichomanes spicata*. A dwarf-growing plant, having dark green pinnatifid sterile fronds, and not growing over six inches long, and prostrate, the fertile fronds have the appearance of little bells on spikes, a pretty species for a close case in a stove temperature. Native of the West Indies.

GLEICHENIA.

Gleichenia, Smith. Named in honour of the Baron P. F. Von Gleichen, a German botanist. A genus of climbing ferns, of great beauty, and gracefulness, and are largely grown by exhibitors, as they form handsome specimens, some of the species have little round segments, with somewhat the appearance of beads, and others have linear ones. Some of the species are widely distributed, for instance, *dichotoma* has been found in Ceylon, Jamaica, Trinidad, Malacca, Penang, Japan, and China, they are rather difficult to import, thus accounting for the price being kept up, although they grow very plentiful in their native haunts; they grow well in a mixture of loam, peat, and sand, and are propagated principally by dividing the plants, although some of late have succeeded in raising them from spores.

G. alpina. This is without any exception the dwarfiest grower of the whole genus, it rarely ever exceeds a foot in height, and the pinnae about an inch long, with small bead-like segments, of a bright green colour, on the upper side, and paler beneath. A greenhouse species, from Tasmania.

G. circinata. See *G. microphylla*.

G. circinata glauca. See *G. Mendelii*.

G. circinata borneensis. This is one found by Mr. F. W. Burbidge, and is described in the "Journal of Botany," by Mr. J. G. Baker as being a stiff erect-growing form, with the final bi-pinnate divisions unusually long, the leaf portion between the primary and secondary forking also unusually long, the rachis glabrous, the texture more rigid, and the ultimate segments smaller, and more bullate, than in the Australian form. A stove species, from the North West of Borneo.

G. Cunninghami. This is of an erect habit, with large fan-shaped fronds, and growing three or four feet high, and several times dichotomously branched, the segments narrow, and six to eight inches long, of a bright green above, and glaucous beneath, the young fronds are covered with large brown chaffy scales. A green-house species, from New Zealand.

G. dicarpa, *G. scandens*. This grows from four to five feet high, or even more, the fronds are scandent, and dichotomously divided, with small orbicular segments, having the edges rolled back and forming little pouches on the underside, the stems perfectly smooth; it somewhat resembles *G. microphylla*, but more compact. A green-house species, from New South Wales.

G. dicarpa longipinnata. This variety has a brown stem, and clothed with close fimbriated scales, as well as the under side of the rachis; and generally branched into pairs, three times, and furnished with drooping pinnae, about five inches long; the colour of the fronds, when young, is of a dark green, with a bluish tint, and glaucous underneath. A green-house plant, from Australia.

G. dichotoma, *G. Hermannii*. A stove species, of rather an erect habit, with a wiry creeping rhizome; from which rises the bright green fronds, which are from three to five feet high, and dichotomously divided; the final divisions being long narrowish segments, this is widely distributed through the Tropics.

G. flabellata. This also is an erect-growing species, and reaching in some instances to five or six feet high, with fronds divided into a fan-shaped form, and longish segments, of a very pleasing dark green colour. A green-house species, from Australia and Tasmania.

G. fureata. This has the fronds several times divided in a dichotomous form, with longish linear pinnae, and pinnatifid, of a dullish green colour, and slightly pubescent. A stove species, from the West Indies.

G. hecistophylla. This has somewhat a resemblance to *G. dicarpa*, but is longer in all its parts; the stipes and the rachis are densely covered with short reddish hairs; the segments are small and pouched, of a bright dark green colour, and smooth. A green-house species, from New Zealand.

G. Hermanii. See *G. dichotoma*.

G. Mendelii. *G. circinata glauca*. A variety of *microphylla*, of more robust growth, and thicker texture, and the under surface of a beautiful glaucous colour. A green-house variety, from New Zealand.

G. microphylla. *G. circinata*. A fine-growing plant, with the fronds dichotomously branched; the stems all clothed with short reddish-brown hairs, the segments ovate, and dark green colour on the upper surface, paler underneath, and quite flat; it makes a grand exhibition plant. A green-house species, from Tasmania and New South Wales.

G. pectinata. A very pretty kind, and appears to be a variety of *dichotoma*, but is not so many times divided, nor so strong in its growth, and very glaucous beneath. It is a native of the West Indies, and requires a stove temperature.

G. pubescens. This also is a stove species, having the fronds several times divided in a dichotomous manner; the final divisions of a linear lanceolate form, and beautiful dark green above, and clothed below with a light brown pubescence. Native of Brazil.

G. rupestris. This grows to the height of five or six feet and branched with reddish-purple stems and

little bead-like divisions and not pouched like some of the species; but flat, and very deep green above, and glaucous beneath. A green-house species, from New South Wales.

G. rupestris glaucescens. This is a more glaucous variety of the preceding, and requires the same temperature.

G. scandens. See *G. dicarpa*.

G. semivestita. This has somewhat a resemblance to *dicarpa*, with fronds forked, the branches pectinate, and pinnatifid pinnae, and not pouched; the stems slightly hairy, and the branches more thickly clothed, with reddish hairs; this is said to be one of the hardiest of the genus, and that it will stand a little frost without being injured, but as to that, I am unable to say. It is a native of New Caledonia.

G. speluncæ. A strong-growing species, having the fronds forked; the pinnae pinnatifid, and rather long; the segments, roundish, and flat, of a light green colour above, and glaucous beneath, and quickly makes a fine specimen. A green-house species, from New South Wales and Tasmania.

GONIOPHLEBIUM.

Goniophlebium, Presl. From *gonia*, an angle, and *phleps*, a vein, alluding to the veins being angled; some of the species of this genus are well adapted for baskets, growing as they do to ten or fifteen feet long, or even more; while others are suitable for cases, the veins are very prominent in some species, and the sori so deeply imbedded, that it shows on the upper surface. They all grow well in fibrous peat, and sand, and are readily increased by dividing the creeping rhizomes, and also from spores.

G. albo-punctatum. Polypodium albo-punctatum. This has pinnate fronds, about two feet long, of a triangular outline; the pinnules undulated, and covered with white scales on the upper side; and has a creeping rhizome, which is also clothed with scales. A stove species, from Brazil.

G. appendiculatum, G. scriptum, Polypodium appendiculatum, Polypodium scriptum, Polypodium plesiorum. A very pretty species, with fronds from one to three feet long, and slightly arching; the pinnules from four to six inches long, of a membranous texture, and reticulated with a reddish venation, which gives it a very ornamental appearance; the creeping rhizome is of a peculiar light green colour, and contrasts well with the fronds. A warm green-house species, from Mexico.

G. argutum. See *G. cuspidatum*.

G. catherinæ. A stove species, with the fronds from one to two feet high, and almost triangular in form; the pinnules are oblong, and blunt, with round yellowish sori, placed on the back; the creeping rhizome is clothed with scales, which over-lap each other. Native of Brazil.

G. colpodes. This grows about two feet long, of rather a lanceolate form, and pinnate, at the lower part, and becoming pinnatifid towards the top, and of a dark green colour. A stove species from Venezuela.

G. cuspidatum, G. argutum, Schellolepis cuspidatum. A very distinct species, having pinnate fronds, and rather lanceolate in form; with the pinnules pointed, and has pale brown shining stipes, growing on a scaly creeping rhizome. A stove species, from Nepaul.

G. deflexum. A stove species, growing about two feet high, having the fronds pinnate; the pinnae bent

down and undulated, and has dark green stipes, with the sori brown, and placed in two rows, the rhizome scaly and creeping. Native of Brazil.

G. glaucum, *Polypodium glaucum*. This species is of rather a symmetrical growth, with the fronds of an ovate, lanceolate form, and pinnatifid, growing about a foot long; the pinnules glabrous, and obtuse at the points, and of a bluish green colour. A stove species, from Brazil.

G. glaucophyllum, *Polypodium glaucophyllum*. This has simple fronds, of an oblong lanceolate form, and coriaceous in texture; which are of a deep glaucous green colour above, and silvery beneath, and conspicuously veined; the rhizome are creeping, and clothed with chaffy scales. A stove species.

G. harpeodes. A very strong-growing species, with the fronds growing four or five feet long, and pinnate; the pinnules rather curved, and has a thick creeping rhizome, clothed with scales. A stove species, from Brazil.

G. incanum. A dwarf-growing species, having pinnatifid fronds, rarely exceeding nine inches in height, of a lanceolate form; the pinnæ oblong obtuse, and leathery in texture, and clothed with brownish hairy scales, the creeping rhizome also clothed with scales. A stove species, from the West Indies and Tropical America.

G. lachnopus. This grows from one to three feet long, and has pinnate narrow fronds, of a drooping habit and well adapted for growing in a basket. A stove species, from the East Indies.

G. latipes. This grows about eighteen inches long, very slender, and of a drooping habit; the fronds pinnated, with long, narrow, pinnules undulated and

spreading, with a creeping rhizome of a light green colour. A stove species, from Brazil.

G. lepidopteris. See *Lepicystis sepulta*.

G. meniscifolium, *Polypodium longifolium*. A strong-growing species, with pinnate fronds, the pinnules about six inches long, of a lanceolate form, undulated; and of a bright shining green colour, and has a scaly creeping rhizome. Native of Brazil, and requires a warm temperature.

G. piloselloides. See *Lopholepis piloselloides*.

G. sepultum. See *Lepicystis sepulta*.

G. squamata, *Polypodium squamata*, *Lepicystis squamata*. A singular-looking species, growing from one to two feet long, and six to eight inches broad; the fronds pinnately divided into segments, three or four inches long; and with the stipes densely clothed with large brown hairy scales. A stove species, from the West Indies.

G. subauriculatum, *Polypodium subauriculatum*, *Polypodium Reinwardtii*, *Schellolepis subauriculatum*. This is one of the finest of the genus, and, in some instances, grows to nine or ten feet long, but is oftener seen three or four feet, the fronds are pinnate, with long narrow pinnæ, which is rather eared at the base, the fronds arch over in a graceful manner, and of a bright-green colour. A stove species, from the Malay Islands.

G. subpetiolatum. See *Polypodium subpetiolatum*.

G. undulatum. The fronds of this are from two to four feet long, and pendant in habit; the pinnules thickly set on the rachis, and wavy at the edges, and of a bright green colour. A stove species, from Java.

G. variallans. This grows about two feet high, with pinnate fronds erect; the pinnules lanceolate,

from three to six inches long, of a shining, and dark green colour, and leathery texture; the rhizome creeping, and of a light green colour. A stove species, from Brazil.

G. vaccinifolium. See *Polypodium vaccinifolium*.

G. v. albidum. See *Polypodium v. albidum*.

G. verrucosum, *Polypodium verrucosum*, *Schellolepis verrucosum*. This somewhat resembles *subauriculatum*, but are much broader, and has longer pinnae, which are from six to eight inches long, and of a vivid green colour. A stove species, from Malacca.

GONIOPTERIS.

Goniopteris, *Presl*. From *gonia*, an angle, and *pteris*, a frond, in reference to the venation of the fronds, the sori placed in small round dots, throughout the entire length; some of the species form nice specimens, and others are well adapted for baskets and a few will do well in a Wardian case; they are propagated by dividing the plant, and also by spores, the strong-growing species are best grown in a mixture of peat, loam, and sand, the smaller-growing species grow best in fibrous peat, and sand, the fronds are very useful for cutting, as they last so long without shriveling.

G. asplenioides, *Polypodium asplenioides*. This has pinnate fronds, from nine to fifteen inches long, with the pinnae alternate; from one to two inches long, and bright green colour. A stove species, from Jamaica.

G. crenata, *Polypodium crenata*. This grows from twelve to eighteen inches high, having pinnate fronds; the pinnae about six inches long, and about two inches broad, of a deep green colour, and crimped edges. A stove species, from the West Indies.

G. diversifolia. See *G. viripara*.

G. Fosteri. See *G. pennigera*.

G. fraxinifolium. See *G. viripara*.

G. Ghiesbreghtii, *Polypodium Ghiesbreghtii*. A stove species, with fronds from two to three feet high, and pinnate; the pinnæ opposite, seven or eight inches long, and one to two inches broad, and deeply toothed on the edges, of a pale green colour, and densely covered with short whitish hairs. Native of Tropical America.

G. gracilis, *Polypodium gracile*. This grows about a foot and a half high, with the lower part pinnate, and the upper part pinnatifid; the pinnæ generally auriculate, and of a dark green colour. A stove species, from Jamaica.

G. pennigera, *G. Fosteri*. This grows from one to two feet high, and pinnate fronds; the pinnæ pinnatifid, from two to three inches long, and bright green colour. A green-house species, from New Zealand.

G. refractum, *Polypodium refractum*. A handsome stove species, from one to two feet high, and six or eight inches wide; the lower pinnæ turned back as if broken, and of an intense green colour. Native of Brazil.

G. reptans, *Polypodium reptans*, *Polypodium compositum*. This has somewhat an appearance of being a small form of *gracilis*; the fronds are from nine to twelve inches long, and pinnate; the pinnæ smallish and obtuse, of a light green colour, and produces young plants at the apex. A stove species, from Jamaica.

G. scolopendrioides. This has fronds from six to nine inches high, and pinnatifid; of a lanceolate form,

and erect in habit, and of a dark green colour. A green-house species, from Jamaica.

G. serrulate, *Polypodium serrulatum*. This has pinnate fronds, growing from twenty to thirty inches high; the pinnae eight inches long, and one to two broad, and toothed at the margins; and of a dark green colour, with large brown reddish colour sori, and very prominent. A stove species, from Jamaica.

G. tetragona, *Polypodium tetragonum*. A strong-growing species, which grows to four feet high, or even more; the fronds are pinnate, the pinnae deeply lobed, and about six inches long, and half an inch broad. A stove species, from the West Indies.

G. trichoides. See *Phegopteris trichoides*.

G. vivipara, G. *diversifolia*, G. *fraxinifolia*, *Polypodium proliferum*, *P. rigidulum*, *Drynaria diversifolia*. The fronds of this are two feet long, and pinnate; the pinnae from three to six inches long, smooth, and of a shining green colour; and forming little buds on the pinnae, which develop themselves into plants. A stove species, from Brazil.

Grammitis. See *Selliguea*, *Phlebodium*, *Gymnogramma*, *Ceterach*, and *Xiphopteris*.

GYMNOGRAMMA.

Gymnogramma, *Desfontaines*. From *gymnos*, naked, and *gramma*, writing, in allusion to the naked sori. A genus with a great many species, and varieties, and among some of the handsomest of ferns, they are what are commonly called gold and silver ferns, by their being covered with a farinose powder, there are however a few exceptions, as *G. chærophylla*, *rufa*, *flexuosa*, and *tomentosa*, are destitute of any covering; at different times several fine varieties

have been raised from spores, and many having the appearance of being crossed, between the gold and silver species; while others have formed a crested, or tasselled form; they are principally from the Tropics, so that they require a stove temperature. There is one species native of our own island, and that has the peculiarity of very few, to be only of annual duration. *Charophylla*, is also an annual, and, when once grown in a fernery, will reproduce itself from spores, without much trouble; all the species are propagated by spores, and divisions, and do well in fibrous peat, and sand, they require plenty of water, when growing, and in a healthy condition, for, if once let get dry, they are most sure never to recover, they should in no case be syringed, but had better be placed in a part of the fernery to themselves, as they are so impatient of such treatment.

G. Allstonii. A golden variety, having all the pinnules curiously recurved, which shows the golden powder on the upper surface, and giving the plant a pleasing appearance. A stove plant, of garden origin.

G. calomelanos. A robust-growing species, with the fronds bi-pinnate, and from two to three feet high, with the stipes black; and clothed at the base, with brownish scales; the pinnules are dark green above, and clothed underneath with a white powder, through which in fertile fronds, protrudes the black sori. A stove species, from the West Indies.

G. calomelanos maxima. This is a broad-pinnuled variety of the preceding. A stove variety, of garden origin.

G. chærophylla. An annual dwarf-growing species, with finely-divided fronds, six to twelve inches

long, of a triangular shape, and of a bright green colour; the under side is clothed with the brown sori, which is placed in lines. A stove species, from Brazil and other places.

G. chrysophylla. A fine species, and one which has sported into a great many varieties; it grows from one to two feet high, of an arching and spreading habit, bi-pinnate, the pinnules obtuse, of a deep green colour, on the upper side, and clothed below with a deep golden powder. A stove species, from the West Indies.

G. chrysophylla grandiceps. An enormous large tasselled variety, and growing from two to three feet high. A stove variety, of garden origin.

G. chrysophylla Lauchiana. This is more vigorous than the species producing larger fronds, and more erect, and brighter underneath. Of garden origin.

G. c. Lauchiana gigantea. A more robust grower than *Lauchiana*, and more in character of the normal form, but much larger. Of garden origin.

G. c. maxima. A large-growing variety of the species, with broad segments. Of garden origin.

G. c. Parsonii. A very compact variety, the pinnæ and apex of the fronds densely tasselled. A beautiful variety. Of garden origin.

G. Crossi. See *G. Peruviana argyrophylla*.

G. dealbata. See *G. tartarea*.

G. decomposita. A species finely cut, and tri-pinnately divided, the fronds from one to two feet high, of a lightish green above, and covered below with a clear yellow powder, which contrasts well with the upper part. A stove species, from the Andes of South America.

G. elegantissima aurea. This grows from one to

two feet high, and bi-pinnately divided, into fine segments, which are slightly toothed, and clothed on the under side, with a lightish yellow powder. A stove variety, of garden origin.

G. flexuosa. The fronds of this are scandent, and of an indefinite length, and bi-tri-pinnately divided, the pinnules narrow, and rather wedge shaped, of a dark green colour; the rachis zigzag, and is so different to most of the genus as it has not any of the farinose powder, which is so common to the genus. A stove species, from Tropical America.

G. ferruginea. See *G. lanata*.

G. gracilis elegantissima. This grows from one to two feet high, and finely cut into small and pointed segments, and densely clothed on both sides with a yellowish white powder. A stove variety, of garden origin.

G. gracilis hybrida. This has somewhat a resemblance to *tartarea*, and is covered with a bright silvery powder, the base of the stipes are clothed with a dense brownish, downy pubescence. A stove variety, of garden origin.

G. gracilis superba. This has graceful curving fronds, with broad glossy green pinnules, with a metallic lustre on the upper side, and clothed below with a thick covering of yellowish white powder. A stove variety, of garden origin.

G. Heyderii. This appears to be a dwarf variety of *Lauchana*, growing about fifteen inches high, with ovate fronds, and very broad pinnules, of a light green above, and clothed with a yellowish powder below. A stove variety, of garden origin.

G. hybrida elegantissima. This grows from nine to fifteen inches high, and bi-pinnately divided into

linear segments, of a dark green colour, and clothed on the under surface with a sulphur-coloured farinose powder. A stove variety, of garden origin.

G. Javanica, *G. striata*. A stove species with fronds, one to three feet high, and bi-pinnate, the pinnules from four to six inches long, and lanceolate, and one and a half inches broad, of a light shining green colour, and has broad stripes of yellow running across the pinnules, thereby giving it a variegated appearance. Native of Java and other places.

G. lanata, *G. ferruginea*. A dense-growing species, bi-pinnately divided, and the pinnules deeply cut, it grows from twelve to eighteen inches long, and nearly destitute of that farinose covering, which is so prevalent in most of the species. A stove species, Native of Veragua.

G. L'Herminieri. A dwarf-growing species, which grows about a foot high, of a triangular form, and bi-pinnate; of a soft green colour above, and clothed with a bright yellow powder below. A stove species, from Guadaloupe.

G. luteo alba. A strong-growing plant, with large pinnules, of a dark green colour, on the upper side, and clothed below with both gold and silver coloured powder. A stove variety, probably of garden origin.

G. Martensi. This grows from twelve to eighteen inches high, of a shining green above, and sparingly clothed below, with a light sulphur-coloured powder. A stove variety, of garden origin.

G. Massonii. See *G. Ochracea*.

G. Parsonii. See *G. chrysophylla Parsoni*.

G. Pearcei. A pretty species, growing from twelve to eighteen inches high; with the fronds four times divided, into fine segments, of a vivid green colour;

and slightly dusted, on the under side, with a white powder; the stipes are brown, and the fronds are triangular in outline. A stove species, from Peru.

G. Peruviana. This grows about two feet high, with broad spreading fronds, the pinnules roundish on the top, and light green on the upper side, and clothed beneath with a silvery white powder. A stove species, from Peru.

G. Peruviana argyrophylla. *G. Crossi*. A very handsome variety, growing about two feet high, with beautiful, broad, arching fronds, the pinnules are broad and obtuse, and profusely clothed on both surfaces, with a dense covering of silvery white powder. A stove variety, from Tropical America.

G. Peruviana laciniata. A finely-cut variety, with all the good qualities of the normal type. A stove variety of garden origin.

G. pulchella. A rather strong-growing species, from one to two feet high; the pinnae cut into fine segments, of a dark green on the upper side, and silvery beneath. A stove species, from Venezuela.

G. pulchella ramosa. A variety of the preceding, with the fronds branched, and the pinnae as well. Of garden origin.

G. pulcherrima nivea. A rather strong-growing plant, with fronds from one to two feet high, and tri-pinnately divided into smallish ovate segments, of a deep green above, and densely clothed with a very white powder below. A stove fern, of garden origin.

G. Rollisonii. A strong-growing variety, the fronds of good specimens growing to the height of three feet, with rather drooping pinnae, of a dark green colour on the upper side, and clothed below with a yellowish powder. A stove variety, of garden origin.

G. rufa, *Nothochlaena rufa*, *Hemionitis rufa*. This has pinnate fronds, from nine to fifteen inches long, with oblong obtuse pinnae; the stipes and rachis are reddish, and the whole plant is clothed with a woolly-like pubescence. A stove species, from Tropical America.

G. Schizophyllum. A very distinct plant, growing from one to two feet long, of a graceful arching habit, and has the peculiarity of the rachis being furcated at about two thirds of its length, and every frond produces a young plant at the point of furcation; the pinnules are delicately cut into rather deltoid segments of a pleasing green colour; the stipes and rachis are rather slender and reddish-brown. A stove species, from the West Indies.

G. striata. See *G. Javanica*.

G. sulphurea. A pretty little plant, growing from six to twelve inches high and having bi-pinnate fronds, of a light green colour, the under side is densely clothed, with a sulphur coloured powder. A stove species, and rather delicate, from Jamaica.

G. tartarea, *G. dealbata*, *Hemionitis tartarea*. A stove species, having bi-pinnate fronds, from one to two feet long, of an arching habit, the pinnae lobed, with roundish lobes, dark green above, and clothed beneath, with a very white powder, through which protrudes the black sori, which is very freely produced; the crown of the plant, and the base of the stipes, are clothed with brownish scales. Native of South America.

G. tomentosa. This resembles *rufo* in appearance, but can easily be distinguished from that species, the fronds of this in most instances are bi-pinnate, and grows from ten to twenty inches high, of a dark green

colour, and covered with a woolly-like pubescence, the stipes and rachis are clothed with reddish hairs. A stove species, from Brazil.

G. triangularis. A dwarf-growing species, with the fronds only a few inches high, of a bright green colour, and triangular in outline, and covered below with a light golden powder. A nearly hardy species, from California.

G. trifoliata. A strong-growing species, attaining to the height of four feet, the fronds are bi-pinnate, the segments tri-foliate and linear, of a bright dark green above, the underside covered with a farinose powder; some of which are white, and others are yellow. A stove species, from Jamaica.

G. villosa. See *Leptogramma villosa*.

G. Wettenhalliana. A pretty tasselled variety, and very compact in habit, with the upper side of a bright green colour, the under side profusely covered with a whitish yellow farinose powder, it appears to be a variety of *pulchella*. A stove fern, of garden origin.

G. W. flava. A variety of the preceding, with the powder on the under side of a sulphur colour. Of garden origin.

GYMNOPTERIS.

Gymnopteris, *Presl*. Named from *gymnos*, naked, and *pteris*, a fern, the sori being naked. This genus has two forms of fronds, the fertile ones much contracted, the barren ones are much broader, there are several species, but the two following are the most commonly met with; they grow well in loam, peat, and sand, and are propagated by spores, as well as dividing the plants.

G. Neitnerii. See *G. quercifolia*.

G. nicotianafolia. A strong-growing species, with the fronds pinnate, the sterile ones having the fronds reclining, and broad pinnæ, and bright green colour, while the fertile ones are erect, and contracted; and growing about two feet high. A stove species, from the West Indies.

G. quercifolia. *G. Neitnerii*. A dwarf-growing species, with the barren fronds close to the ground, and very much resembling an oak leaf, and about four inches long, the fertile fronds about six inches long, pinnatifid, and halbert shaped; the segments linear, and much contracted, and dark green colour. A stove species, from Ceylon.

Haplopteris. See *Pteris*.

HELMINTHOSTACHYS.

Helminthostachys, *Kaulfuss*. From *helmins*, a worm and *stachys*, a spike, in reference to the worm-like spike, of the sporangia. A deciduous species, and related to *Botrychium*, but is rarely seen, except in large collections; it grows well in a mixture of loam, peat, and sand, it requires plenty of water, when growing, and even in its deciduous state it must not be let get dust dry; Increased by division, and spores.

H. zeylanica. A deciduous species, growing about a foot high, with the sterile and fertile segments quite distinct, the former rather distant, the pinnules about six inches long, and one broad; the latter produced on cylindrical-like branches, with the sporangia sessile, and rather globulose in form. A stove species, from Ceylon.

Hemicardium. See *Cyclopeltis*.

HEMIDICTYUM.

Hemidictyum, Presl. From *hemi*, half, and *dictyon*, a net, referring to the venation of the fronds. A bold-growing genus, with only one species, in cultivation, and allied to the genus *Asplenium* of a very peculiar colour, and ornamental habit, they are best grown in rough peat, and loam, with an addition of sand, they are increased by dividing the plants.

H. marginatum. A strong-growing plant, having pinnate fronds, and, in some instances, reaches to the height of twelve or fourteen feet, the pinnæ from one to two feet long, and five or six inches wide, of a lively green colour, and nearly transparent. A stove species, from Tropical America.

HEMIONITIS.

Hemionitis, Linnæus. From *hemionos*, a mule, the species is supposed to be barren. A pretty genus, well suited for growing in a Wardian case, the species have simple fronds, and produce young plants at the base of the fronds, the sori placed in a reticulated form; they are best grown in small pots, with peat, and sand, and are increased by dividing the plants, and the young plants that are formed at the base.

H. cordata, *H. cordifolia* *H. sagittata*. This grows about nine or ten inches high, with simple fronds heart-shaped, and densely clothed with black hairs, and rather coriaceous in texture, it produces young plants, at the base of the fronds. A greenhouse species, from the East Indies.

H. cordifolia. See *H. cordata*.

H. discolor. See *Lomaria discolor*.

H. esculenta. See *Callipteris esculenta*.

H. grandifolia. See *Diplazium grandifolium*.

H. Japonica. See *Dictyogramma Japonica*.

H. lanceolata. See *Antrophyum lanceolatum*.

H. palmata. A pretty stove species, growing about a foot high, with the fronds lobed into three or five divisions, and clothed with soft dark hairs, and produces young plants at the base of the fronds. Native of West Indies.

H. pothifolia. See *Selliguea pothifolia*.

H. rufa. See *Gymnogramma rufa*.

H. sagittata. See *H. cordata*.

H. tartarea. See *Gymnogramma tartarea*.

HEMITELIA.

Hemitelia, *R. Brown*. From *hemi*, half, and *mitella*, a mitre, in reference to the form of the caudex. A genus of tree ferns, which are among some of the rarest of ferns, the stems are slender, the fronds broad, with regular lines of large sori enclosed in a half cup-like shape involucre, they grow well with plenty of moisture, in a mixture of two parts peat, and one loam. For further particulars, see chapter on Tree Ferns.

H. cyathea. See *H. horrida*.

H. grandifolia, *Alsophila grandifolia*. A tree species, producing a stem, five or six feet high, on which grows the long fronds, which are pinnate, from three to seven feet long; the pinnæ about a foot long, and pinnatifid; of a bright shining green colour. The crown is clothed with scales, and the stipes at the base are armed with a few stoutish spines. A stove species, from the West Indian Islands.

H. Guianensis var *paradæ*, *Alsophila Guianensis*. A tree fern, with a trunk, of a moderate height, and clothed with adventitious roots, the fronds eight or nine feet long, and bi-pinnate, the pinnæ opposite and

sessile, the young fronds are covered with grey pubescence, which is lost as they grow older, and are armed with short prickles at the base of the stipes. A stove variety.

H. horrida, Alsophila horrida A rather tall-growing species, from nine to ten feet high, or even more, with fronds from nine to ten feet long, of a broad lanceolate form, and bi-pinnate, the pinnules pinnatifid, from twelve to eighteen inches long, and bright green on the upper side, and paler beneath, and slightly woolly; the stipes are scaly, and armed with long stout spines. A stove species, from the West Indian Islands.

H. Imrayana. See *Cyathia Imrayana*.

H. Karsteniana. The fronds of this species are pinnate, with very long and broad fronds, with the pinnae upwards of a foot long, and two inches broad, of a very dark green colour, and lobed into obtuse segments. A stove species, from Venezuela.

H. obtusa. This is closely allied to *H. grandifolia*, but looks very different when placed together, this has large pinnate fronds, with deeply pinnatifid pinnules, of a deep green colour, and clothed with few whitish scales, when young, which soon fall off; the stipes are armed at the base with short spines. A stove species, from the West Indies.

H. speciosa, Alsophila speciosa. A free-growing species, with large fronds of a spreading habit, and pinnate, the pinnae about fifteen inches long, and slightly lobed at the edges, of a deep green colour; and different from most of the species, by being destitute of prickles on the stipes; and the sori placed near the margin. A stove species, from Brazil and Caraccas.

H. spectabilis. A grand stove species, having broad pinnate fronds, growing from twelve to eighteen

feet or even more; the pinnæ from twelve to eighteen inches long, and two or three inches broad, and deeply lobed into obtuse segments, of a light green colour. Native of Venezuela.

Heteroneuron. See *Cyrtogonium*.

HUMATA.

Humata Cavanilles. Of doubtful origin, but probably from *humatus*, interred, referring to the underground stem. A genus of close relation to *Davallia*, but separated from that on good authority, they all grow well in fibrous peat, and sand, and are best propagated by dividing the plants.

H. affinis. See *Acrophorus affinis*.

H. alpina Davallia alpina. A dwarf-growing species, having triangular-formed fronds, and bipinnatifid, of a dark green colour, and rather coriaceous in texture, and has a creeping rhizome. A stove species, from Borneo.

H. chaerophylla. See *Acrophorus chaerophylla*.

H. heterophylla, H. ophioglossa, H. pinnatifida, Davallia heterophylla. A pretty dwarf-growing species, having barren simple fronds, and oblong, three or four inches long, the fertile ones are pinnatifid, and very narrow. A stove species, from the Malay Islands.

H. immersa. See *Leucostegia immersa*.

H. ophioglossa. See *H. heterophylla*.

H. pedata, Davallia pedata, Pachypleura pedata. This somewhat resembles, *alpina*, but is larger, growing about six inches high, bi-pinnatifid, and of a deltoid form, and of rather a leathery texture. A stove species, from the Malay Islands.

H. pinnatifida. See *H. heterophylla*.

Hydroglossum. See *Lygodium*.

HYMENODIUM.

Hymenodium Fee. From *hymen*, a membrane. A genus with only one species, of a very curious form, and called by some the elephant's ear fern, from its resemblance. In its native haunts, it forms fronds of great magnitude, it grows well in a mixture of peat and sand, it is increased best by dividing the plants.

H. crinitum, Dictyoglossum crinitum. A curious-growing fern, with simple fronds, entire, from one to two feet long, and six to nine inches broad, with stipes about six inches long, the fertile ones are not quite so large, the sori scattered all over the under surface, both fronds are covered with long black hairs; it has a decumbent rhizome which is densely clothed with hairs. A stove species, from the West Indies.

HYMENOPHYLLUM.

Hymenophyllum, Smith. From *hymen*, a membrane, and *phyllon*, a leaf, in reference to the membranaceous texture of the fronds. This is one of the genus known as filmy ferns, and is represented by two species in Great Britain, viz., *Tunbridgensis*, and *unilaterale*, which are among some of the smallest of ferns, some of the exotic species only attain an inch or two in height, while some grow two to three feet long, they all grow in the respective temperature they require, best under bell glasses, or cases, in the mixture as recommended for filmy ferns.

H. abruptum. A stove species, with fronds not exceeding two inches long, and one inch broad, pinnatifid, broadly oblong, and blunt at the top, and of a deep shining green colour. Native of Jamaica.

H. aruginosum. A green-house species, having oblong tri-pinnatifid fronds with close segments, and

densely covered with long, tawny hairs, and has a creeping rhizome. Native of New Zealand.

H. asplenioides. This has a slender, ereeping rhizome, with pinnatifid fronds, six to eight inches long, and pendulous; of an oblong lanceolate form, and light shining green colour. A stove species, from Jamaica.

H. attenuatum. This has a ereeping rhizome, with fronds about a foot long, and thrice divided; with the segments toothed at the margin, and furnished with hairs, and of a very membranous texture, and pale green colour. A green-house species, from the Organ Mountains.

H. axillare. A very slender and branching rhizome species, with the fronds linear, oblong, and twice divided, with a drooping habit; and has the peculiarity of forming side branches on the pinnæ. A stove species, from Jamaica.

H. bivalve. The fronds of this are erect, and three times divided, of a broad ovate form, the much-divided segment being toothed and rather spiny; and of a deep green colour. A green-house species, from New Zealand.

H. caudiculatum. A rather broad-fronded species, with fronds from twelve to fifteen inches high, and three times divided, the ends of the segments run out into long tail-like points, the stipes broadly winged, the fronds of a bright shining-green colour, and thickish texture. A green-house species, from the Organ Mountains.

H. Chilensis. A little dwarf, tufted plant, with the fronds once or twice divided, and furnished with simple rigid hairs, and of a pale green colour. A green-house species, from Chiloe.

H. ciliatum. A pretty species, having bi-pinnatifid fronds, from three to six inches long, of an erect habit, and broad ovate form, of a dark green colour, and clothed with tawny hairs, and has a creeping rhizome. A stove species, from the West Indies.

H. crispatum. A green-house species, with a creeping rhizome, which produces fronds, six or eight inches long, tri-pinnate, and triangular in form, and has a very crisp appearance, and deep green colour. Native of New Zealand.

H. eruentum. An entire-fronded species, of a broad lanceolate form, the young fronds are green, but, as they get older, change to a dull reddish-brown colour. A green-house species, from Valdivia.

H. demissum. This grows from six to twelve inches long, with tri-pinnate fronds, of an ovate acuminate form, and very fine segments of a deep green colour. A green-house species, from New Zealand.

H. dichotomum. A very delicate and crisped variety, with fronds about six inches long, of an ovate lanceolate form, and twice divided, with small segments, somewhat toothed at the edges, and of a deep green colour. A green-house species, from Chiloe and Juan Fernandez.

H. dilatatum, *Leptocionium sororium*. A rather strong-growing species, with fronds ten to eighteen inches long, with broad fronds of a lovely green colour; and three times divided, it has a creeping rhizome, of rather a climbing habit, and the stipes winged. A green-house species, from New Zealand.

H. elasticum. This has ovate acuminate fronds, six to nine inches long, of a deep green colour, three times divided, and of a very thin texture. A stove species, from the Isle of Bourbon and Mauritius.

H. flabellatum. A green-house species, with fronds, six to eight inches long, and twice divided; of an ovate form, and flaccid texture, and a shining green colour. Native of New Zealand.

H. flexuosum. The fronds of this species are about a foot long, a broad ovate form, and much divided, with a crisp appearance, the margins undulated, and nearly related to *H. crispatum*. A green-house species, from New Zealand.

H. fuciforme. This has broad fronds, from one to two feet long, and of an erect habit, and tri-pinnatifid, smooth, and shining and broadly winged, and has a beautiful glaucous hue. A green-house species. Native of Juan Fernandez and Chiloe.

H. hirsutum. The fronds of this are pinnatifid, growing about six inches long, and pendulous, of a very membranous texture, and clothed with soft tawny stellate hairs. A stove species, from the West Indies and Brazil.

H. hirtellum. This has a creeping rhizome, with tri-pinnatifid fronds, from six to eight inches long, and three inches broad, of a light green colour, and clothed with branched reddish hairs. A stove species, from Jamaica.

H. interruptum. A rather strong-growing species with the fronds one to two feet long, and two to three inches broad, pinnate on the lower part, and bi-pinnate on the upper part, and profusely furnished with soft hairs. A stove species, from the Forest of Pampayaco.

H. lineare. A pinnate species, having fronds about six inches long, the segments narrow, and sparingly clothed, with soft stellate hairs, and has a creeping rhizome. A native of West Indies and other places, and requires a stove temperature.

H. pectinatum. This has a creeping rhizome, with fronds from four to eight inches long, of a linear lanceolate form; the pinnæ curved upwards, and toothed only on the upper side, which gives it a comb-like appearance. A green-house species, from the Southern part of Chili.

H. Plumieri. A stove species, having the fronds about eight inches high, and pinnate, the pinnæ serrated, and dark green colour. Native of the West Indies and Brazil.

H. polyanthos. The fronds of this are tri-pinnatifid, and from six to twelve inches long, of a very dark green colour; and has a wirey, creeping rhizome. A greenhouse species, widely distributed, and varies in different localities, but the variety from Jamaica is the best, also from the West Indies and New Zealand, and other places.

H. pulcherrimum. The fronds of this grow from ten to fifteen inches long, and four or five inches broad, finely divided into segments tri-pinnately; of a soft texture, and pale green colour. A green-house species, from New Zealand.

H. rarum, *H. semibivalve*. A pretty little low-growing species, with the dark green fronds produced on a wirey rhizome, and only two or three inches long, it is a green-house species, widely distributed in the Antipodes.

H. scabrum. This attains to the height of twelve to fifteen inches, and, in some instances, to two feet, it is of an ovate acuminate form, and several times divided into fine segments, the stipes are clothed with roughish hairs. A green-house species, from New Zealand.

H. semibivalve. See *H. rarum*.

H. sericeum. This has pinnate fronds, from one to two feet long, and pendulous, and two to three inches broad, growing on a creeping rhizome ; the fronds are clothed with a ferruginous covering of silky hairs. A stove species, from the West Indian Islands and other places.

H. valvatum. The fronds of this species grow from six to twelve inches long, and tri-pinnatifid, and broadly oblong, with somewhat narrow segments, which are undulated, and slightly hairy, and of a pleasing green colour. A green-house species, from Columbia.

HYMENOSTACHYS.

Hymenostachys, *Bory*. From *hymen*, a membrane, and *stachys*, a spike, the fertile ones being formed in a spike. This genus is separated from *Trichomanes* on that account, another noticeable feature is the reticulated veins in the barren fronds, they are increased by dividing the plants (for further particulars, see chapter on Filmy Ferns).

H. elegans. This has the fronds in a tufted form, the barren and fertile fronds quite different, and growing about a foot high, the former are pinnatifid, and broadly lanceolate, and deep green colour, while the latter are erect, flat, and about half an inch wide, with the involucres seated in the margins, it frequently produces young plants by the prolongation of the rachis of the sterile fronds. A stove species, from the West Indies.

Hypochlamys. See *Diplazium*.

HYPODERRIS.

Hypoderris, *J. Smith*. From *hypo*, beneath, and *derris*, a skin. A genus separated from *Woodsia* on

account of its reticulated venation, it grows well in fibrous peat, and sand, and thrives well in abundance of heat moisture, increased by dividing the plants.

H. Brownii. A rather variable species, the fronds are sometimes simple, and entire, but, when properly developed, are three lobed, the centre lobe more than double the length and breadth of the side ones; the stipes and rachis are slightly scaly, the fronds are from one to two feet long, and bright light green colour. A stove species, from Guiana and Trinidad.

HYPOLEPIS.

Hypolepis, Presl. From *hypo*, beneath, and *lepis*, a scale, in reference to the sori. A genus of very free growth, with creeping rhizomes, and some of the species are finely divided, and grow well in a Wardian case, they are easily propagated by dividing the rhizome, and by spores, they grow best in a rough fibrous peat, and, when growing, require an abundance of water.

H. amaurorachis. An elegant species, divided into minute segments, of a very graceful and light appearance, and pale green colour. A green-house species, from New Zealand.

H. Bergiana, Cheilanthes Bergiana. A finely-divided species, with the fronds about two feet long, triangular in outline, of a bright green colour, and covered with little hairs. A green-house species, from Cape Colony, Natal.

H. distans. This grows about a foot long, of a beautiful dark green colour, and bi-pinnate, the pinnules serrated. A pretty green-house species, from New Zealand.

H. repens, Cheilanthes repens. A strong-growing species, from three to five feet long, the fronds many

times divided, and covered with soft hairs, and of a light green colour, and herbaceous texture, and has a large creeping rhizome, it is a Native of the West Indies, but will do in a green-house temperature.

H. repens crispum. See *H. repens difforme*.

H. repens difforme. A curled variety of *repens*, and of a pleasing appearance. Of garden origin.

H. rugulosa, *Phegopteris rugulosa*, *Polypodium rugulosa*. A rather strong-growing species, with tri-pinnate fronds, about two feet high, and light green colour, with the creeping caudex clothed with rough scales. A green-house species, from Van Dieman's Land.

H. tennifolia. The fronds of this species grow from one to two feet high, and divided into fine segments, of a pleasing bright-green colour. A green-house species, from New Zealand and other places.

LASTREA.

Lastrea, *Presl.* In compliment of M. Delastrea, a French botanist and microscopical observer. A large genus widely distributed in various parts of the world, there are seven species, natives of our own island, and these have sported into numerous varieties, the dwarf-growing species form nice plants for a Wardian case; one of the chief points of the genus is the kidney-shaped indusium, the species grow well in loam, and peat, with a little sand, and most of them are readily propagated from spores.

L. acuminata, *L. atrovirens*, *L. Shepherdii*. A pinnate species, with fronds six to twelve inches high, of a narrow lanceolate form, and the pinnae rather deeply cut on the upper margin, of a deep green colour,

and tapering to a very sharp point. A green-house species, from New Zealand.

L. albo punctata. The fronds of this species grow from one to two feet high, pinnate, and the pinnæ deeply pinnatifid, of a dark green colour, and spotted on the surface, with small white spots. A stove species, from the Mauritius.

L. athmantica. A dwarf-growing species, about a foot high, and bi-pinnately divided into roundish segments, which are regularly toothed, and of a graceful appearance, and light green colour, with a triangular outline. A green-house species, from Cape Colony.

L. atrata, *Cyrtomium atrata*. A pinnate species, from twelve to fifteen inches long, of an ovate acuminate form, the pinnales lanceolate, and serrated, of a dark green colour, and two to three inches long; the stipes are dark brown, and with the rachis slightly clothed, with narrow chaffy scales. A stove species, from the East Indies.

L. atrovirens. See *L. acuminata*.

L. chrysoloba, *Aspidium chrysoloba*. This has fronds from twelve to eighteen inches long, with the pinnæ pinnatifid, and bearing very large brown sori, of a reddish hue, which are very conspicuous. A stove species, from Brazil.

L. decomposita, *Nephrodium decomposita*. This grows about a foot long, with fronds several times divided, and of a dark green colour. A green-house species, from Australia and other places.

L. decurrens, *L. decursive pinnata*, *Polypodium decursive pinnata*. This grows about a foot long, of a pale green colour, and pinnate, with the pinnæ deeply cut, and decurrent. A green-house and deciduous species, from China.

L. deltoidea. This grows from twelve to eighteen inches high with pinnate fronds, but the first ten or twelve pinnæ at the base are very small, only about a quarter of an inch long, while the upper ones are from two to three inches long, and nearly one inch wide, of a dark green colour, and obtusely lobed. A stove species, from Jamaica.

L. elegans. A rather strong-growing species, with the fronds attaining the height of two feet, and decom- poundly divided, and beautifully arching in habit, of a bright green colour; the base of the stipes clothed with brownish scales. A stove species, from Ceylon.

L. erythrosora, *Nephrodium erythrosora*. This has broad bi-pinnate fronds, from one to two feet long, of a lightish green colour, it has a large sori, which is covered, when young, with a bright red indusium. A hardy species, from Japan.

L. glabella. A pretty and finely-divided species, but usually forms pretty little specimens, about six inches high, although, in some instances, it grows as much more in height, it is of a lightish green colour, and requires a green-house temperatnre, as it is a Native of New Zealand.

L. Goldiana, *L. major*. This is a hardy species, with fronds from one to three feet high, and bi-pin- nate, the pinnæ broad, from three to six inches long, and of a very dark green colour, the base of the stipes are clothed with brown scales. Native of the United States and Canada.

L. hirtipes. This has erect fronds, about two feet long, and very narrow, the pinnæ serrated, and of a dark green, and with a large sori of a brownish colour, he stipes are clothed with black hair-like scales. A hardy species, from North India.

L. hispida, *Polystichum hispidum*. A pretty little and finely-divided species, growing about a foot high, of a triangular form, and tri-pinnate, the pinnules toothed at the margins, and of a dark green colour, the crown and stipes are clothed with very long black hairs. A green-house species, from New Zealand.

L. intermedia. A large and strong-growing species, with the fronds bi-tripinnate, and about two feet long, with the pinnæ toothed, and of a hard texture, the stipes clothed with broad light-coloured chaffy scales. A hardy species, from North America.

L. invisa. A very pretty and large-growing species, with the fronds long and arching, and reaches, in good specimens, five feet long, and nearly two broad in its widest parts, its fronds are pinnate, with the pinnæ deeply pinnatifid, and of a very pleasing light green colour. A stove species, from the West Indies.

L. major. See *L. Goldiana*.

L. marginalis. This has bi-pinnate fronds, from eighteen to twenty-four inches long, the pinnules are rather triangular and sessile, the sori placed near the margin, the covering of which is white, it has scaly stipes, and the fronds are a bright dark green colour. A hardy species, from North America.

L. Maximowiczii. A fine evergreen species, with the fronds cut into five segments, of a glossy green colour, and of a hard texture. A green-house species, from Japan.

L. membranifolia. This grows from twelve to eighteen inches high, with a short erect caudex, the fronds pinnate, of an ovate acuminate form, the lower pinnules at the base are divided into a few crenated, and falcate-shape lobes, the upper part of the frond

only pinnatifid, the divisions coarsely toothed and runs out like the pinnæ into tail-like apices, and has hairy-like scales on the stipes. A stove species, from the Pacific Islands.

L. noveboracensis, *Nephrodium noveboracensis*. This grows twelve to fifteen inches in height, with pinnate fronds, of lanceolate form, and very slender habit, the pinnæ deeply pinnatifid, the segments very narrow, and clothed with short hairs, and has a creeping rhizome. A hardy species, from North America.

L. opaca. See *L. varia*.

L. patens, *Aspidium patens*. This grows from one to three feet long, of a lanceolate acuminate form, and pinnate, the pinnæ deeply lobed, auriculate at the base, and of a bright green colour. A stove species, from Tropical America.

L. podophylla. See *L. Sieboldii*.

L. Richardsii, *Nephrodium Richardsii*. This grows about eighteen inches long, and bi-pinnatifidly divided into long caudate pinnæ, of an oblong lanceolate form, and membranaceous texture, the rachis clothed with a greyish down. A green-house species, from New Caledonia.

L. Richardsii multifida. A larger growing plant than the preceding, often growing to the height of three feet, and the apices, of the pinnæ, as well as the apex, numerously divided into small finger-like segments. A stove variety, from the South Sea Islands.

L. Shepherdii. See *L. acuminata*.

L. Sieboldii, *L. podophylla*, *Pyenopteris Sieboldii*. A strong-growing species, from one to two feet high, pinnate, and of a dark green colour, the pinnæ rather

lanceolate, about six inches long, and one broad, and profusely covered, on the under side, with large, and darkish brown sori. A hardy species, from Japan.

L. Sieboldii variegata. A variegated variety of the preceding. Of garden origin.

L. sparsa. A stove species, with fronds about two feet high and bi-pinnate, the pinnæ about six inches long, with the pinnales broad and lobed, of a dark green colour, the stipes clothed with chaffy scales of a cinnamon colour. Native of Ceylon and various parts of India.

L. Standishii. See *Polystichum concarum*.

L. strigosa. This grows from nine to fifteen inches high, and pinnate, the pinnæ pinnatifid, and of a light green colour, and the stipes are clothed with black hair. A stove species, from the Mauritius.

L. varia, *L. opaca*, *Polypodium varium*. A hardy species, from one to two feet high, with broad and much divided fronds, of a triangular form, the lower pinnæ about six inches long, and of a very dark green colour; the sori black and very prominent, the stipes and rachis are clothed with black scaly hairs. Native of China and Japan.

L. vestita. A strong-growing species, from one to three feet long, of a broad lanceolate form, and bi-pinnatifid; the pinnæ about six inches long, and divided into obtuse segments; the stipes clothed densely with cinnamon-coloured hairs. A stove species, from the West Indies and Brazil.

L. villosa. This is, without exception, one of the finest of the genus, the fronds in strong plants reach to the length of six feet, and are tri-pinnately divided; the pinnæ upwards of two feet long, the pinnales deeply pinnatifid, and six inches long, of a dark green colour;

the stipes are very stout, and clothed with large brown chaffy scales. A stove species, from the West Indies.

Lepichosma. See *Cheilanthes*, and *Nothochlaena*.

LEPICYSTIS.

Lepicystis, *J. Smith*. From *lepis*, a scale, and *kyste*, a box, in reference to the sori being placed among scales. A genus separated from *Goniophlebium* on account of the under surface being covered with ciliated scales; they are well adapted for Wardian cases. For culture, &c., see *Goniophlebium*.

L. incanum. See *Goniophlebium incanum*.

L. sepultum, *Acrostichum lepidopteris*, *Goniophlebium sepultum*, *Polypodium sepultum*, *Polypodium rufulum*, *Polypodium hirsutissimum*. A curious-growing species, twelve to eighteen inches long, the fronds pinnate, and lanceolate in form, the pinnæ clothed with light, hoary, fringed scales, and has a creeping rhizome of whitish colour. Native of Tropical America, but will do well in a green-house temperature.

L. squamata. See *Goniophlebium squamata*.

Lepidoneuron. See *Nepherolepis*.

Leptocionium sororium. See *Hymenophyllum dilatatum*.

LEPTOGRAMMA.

Leptogramma, *J. Smith*. From *leptos*, slender, and *gramma*, writing. This differs from *Gymnogramma* on account of the straight veins, and the sori regularly placed, on the veins towards the lower part of the pinnæ; the species mentioned is rather rare, but is well worth growing, it is best increased by dividing the plants, they are best grown in peat, two parts, and one of loam, with a liberal addition of silver sand.

L. villosa, *Gymnogramma villosa*. The fronds of this are bi-pinnate, and grow about two feet long, with the pinnae placed regular, and opposite to each other, and copiously clothed with a pubescent covering. A stove species, from Brazil.

Leptopteris. See *Todea*.

Leptostegia lucida. See *Onychium lucidum*.

LEUCOSTEGIA.

Lencostegia, *Presl*. From *leukos*, white, and *stegia*, covering, in reference to the white indusium. This genus is closely allied to *Davallia*, and all the species thrive well with the same treatment as recommended for that genus.

L. chærophylla, *Davallia chærophylla*, *Acrophorus chærophylla*. This has finely-divided tri-pinnatifid fronds, of rather a triangular form, from nine to eighteen inches high, borne on a creeping rhizome, and of a beautiful soft green colour. A stove species, from the East Indies.

L. hirsuta, *Davallia ciliata*, *Microlepium hirsuta*. A pretty little species, growing about a foot high and pinnate, the pinnae cut rather deeply into narrow segments of a light green colour, and rather thick in texture. A stove species, from the Isle of Luzon.

L. h. angustata. A variety of the preceding, with the fronds rather narrow and longer.

L. immersa, *Davallia immersa*, *Acrophorus immersa*, *Humata immersa*. This grows from twelve to eighteen inches high, with the fronds smooth and deltoid in form, and tri-pinnate, and of a very pale green colour. A stove species, widely distributed through the East Indian Islands, &c., and is one of the deciduous species.

L. pulchra, *Davallia pulchra*, *Humata pulchra*,

Acrophorus pulchra. A very finely-divided species, of a beautiful vivid green colour, from twelve to eighteen inches high, and deciduous. A stove species, from the East Indian Islands.

LINDSÆA.

Lindsæa, Dryander. Named in compliment to Mr. Lindsey, an English writer on the germination of mosses. A very pretty genus, which formerly was considered difficult to grow, but now they are grown more to perfection, they are of an *Adiantum* form, and grow best in a humid atmosphere, and potted in a sandy loam, and fibrous peat; they are increased best by dividing the plants.

L. botrychioides. See *L. stricta*.

L. cultrata. This is called *Adiantum cultratum* of some, but must not be confounded with the *cultratum* of *J. Smith*, it has pinnate fronds, from four to eight inches high, the pinnæ divided into parts, and, in some cases, are opposite, and in others alternate, the margins are lobed, and of a light green colour, and is strongly scented like the sweet vernal grass, which it retains when dry. A stove species, from the West Indian Islands.

L. falcata. This grows about a foot high, the fronds pinnate, the pinnæ oblong obtuse, and very much of a sickle form, it is a stove species, and a Native of Guiana.

L. guianensis. This has tri-pinnate fronds, from twelve to fifteen inches long, the pinnæ of a bright green colour, and oblique obtuse in form, a very rare species, and requires a stove temperature. It is a Native of Guiana, and the West Indies.

L. Lowii. See *Polybotrya Lowii*.

L. reniforme. A very rare species, with kidney-shaped fronds, in the way of *Adiantum reniforme*, and *Trichomanes reniforme*; it is a native of Guiana, and requires a stove temperature.

L. stricta. This grows from six to twelve inches high, and in most cases are bi-pinnate, but some variety remain pinnate, and, in this form, is called by some authors *L. botrychoides*, the pinnae are somewhat of a lunulate form. A stove species, from Trinidad and other places.

L. tenuifolia. See *Davallia tenuifolia*.

L. trapeziformes. A rather strong species, with the fronds about two feet high, and bi-pinnate, the pinnae six to eight inches long, and the pinnules only on one side; of a bright colour, and broad obtuse falcate form. A stove species, from the West Indian Islands, and other places.

L. trichomanoides. A pretty little species, which grows about six inches high, the fronds bi-pinnate, the pinnae lobed, and of a bright green colour. A green-house species, from New Zealand.

LITOBROCHIA.

Litobrochia. Presl, and J. Smith. A commemorative name. A genus of handsome and strong-growing plants, of easy culture, and separated from *Pteris* on account of its netted veins, and allied to *Doryopteris*. There are several species mostly natives of the Tropics, they are grown best in a mixture of loam, peat, and sand, and are easily propagated, by divisions and spores.

L. aurita. A pinnate species, from one to two feet long, the pinnae pinnatifid, and eared at the base; of a light green colour, and darkish yellow stipes, the sori

marginal and of a brownish yellow colour. A stove species, from the Isle of Luzon.

L. denticulata, *Pteris denticulata*. A pinnate species, with fronds from one to two feet long, and the pinnæ decurrent, the points deeply serrated, the lower ones nearly cleft in two. A stove species, from Brazil.

L. grandifolia. This is a strong-growing species, which, in strong plants, attains to the height of five feet; the fronds are pinnate, with the pinnæ from nine to twelve inches long, and one to two inches broad, and of a bright green colour. A stove species, from Tropical America.

L. leptophylla, *Pteris leptophylla*. The fronds of this species grow from twelve to eighteen inches high, and are tri-pinnate at the base, and bi-pinnate at the top, the pinnæ long and linear, with the edges serrated, and of a light green colour. A stove species, from Brazil.

L. macilentia. A strong-growing species, from two to three feet high, with the fronds tri-pinnate, in the lower part, and bi-pinnate above; the pinnules are lobed, and the lobes beautifully serrated. A greenhouse species, from New Zealand.

L. macroptera. A stove species, from twelve to eighteen inches high; the fronds bi-pinnate, and of a dark green colour, the sori of a brownish yellow, and placed in lines on the edges. Native of the West Indies.

L. podophylla. This is a giant of this genus, growing, in strong specimens, to the height of five feet or even more; the stipes as large as a walking cane, the fronds tri-partite, the segments pinnatifid, and of an intense deep green colour. A stove species, from the West Indies.

L. spinulifera. A rather strong-growing species, from two to three feet high, with the fronds pinnate, and pinnatifid pinnæ, from six to eight inches long, and two to three inches broad, and of a bright green colour; the stipes are armed with spines the whole length. A stove species, from West Africa.

L. tripartita. A quick-growing species, with tripartite fronds from three to four feet long; the pinnæ about two feet long, the pinnules deeply pinnatifid, the apex of each lengthened into a tail-like form and of a bright green colour; the stipes smooth, and reddish-brown colour. A stove species, from West Indies.

L. undulata. This grows from one to two feet high or even more, having pinnate fronds, with the pinnæ deeply pinnatifid of a dark green colour, the rachis light green, the lobes at the base of the pinnæ, on the under side, much the longest. A stove species, from the Fiji's.

L. vespertilionis, *Pteris incisa*, *P. vespertilionis*. A green-house species, with fronds from twelve to thirty inches long, rather arching in habit, and bi-pinnate; the lower pinnæ six to eight inches long, with obtuse lobed sessile pinnules, the two nearest to the stipes are eared, bright green on the upper side, and glaucous beneath. Native of East Indies, Australia, and other places.

LLAVEA.

Llavea, *Lagasca*. In compliment to M. La Llave, a Mexican botanist, the discoverer of the only known species. A curious genus with the fertile parts in a catkin-like form. It should be grown in peat and sand, it is found at considerable elevations, and

will do in a moderate heat ; increased by dividing the plants.

L. cordifolia. *Ceratodactylis Osmundioides*, *Allosorus Karwinskii*. A stove species, from one to two feet long, and tri-quadripinnately divided, the lower part of the frond is sterile, with the pinnæ linear, the pinnules oblong, and about an inch long, the upper part of the frond is much contracted, and pendulous, and assumes a catkin-like appearance. It is a native of Mexico.

LOMARIA.

Lomaria, *Willdenow*. The derivation, from *loma*, an edge, in reference to the sori being placed on the margin. A genus of very ornamental plant, and many are useful for the decorations of rooms, halls, and in shady places out doors, in the summer months. Some form an erect caudex, which forms a tree fern in miniature, and others have a creeping rhizome, and forms nice plants for the Wardian case, some of the species have sported into beautiful varieties, *gibba*, for instance, has three or four varieties, *gibba bella*, is a splendid ramose and tasseled variety. The strong-growing species grow well in loam, peat, and sand, the small-growing ones will grow best without the loam, most of the species are easily obtained from spores, and some by dividing the plants.

L. alpina, *L. antarctica*, *Stegania alpina*, *Stegania antarctica*. A pretty little hardy species, having pinnate fronds, of a lively green colour, the barren fronds grow about four inches high, the fertile ones a little longer and contracted, and has a creeping rhizome. It is a native of New Holland and other places.

L. alpina major. A larger-growing variety of the preceding species.

L. alta. This grows about two feet high, with pinnate fronds; the pinnæ heart shaped, the fertile fronds contracted, long and narrow, of a bright green colour, the stipes are clothed with brown chaffy scales. A green-house species, from New Holland.

L. antarctica. See *L. alpina*.

L. attenuata, *Blechnum attenuatum*. This has an erect stem, which, in some instances, reaches to the height of two feet, and with a creeping rhizome; at the base the barren fronds are pinnatifid, and are about eighteen inches long, the fertile ones about a foot and much contracted. A stove species, from the Mauritius.

L. aurea. See *Onychium auratum*.

L. auriculata. This produces fronds about eighteen inches high, and pinnate, the barren fronds are lance shaped, the fertile ones broader at the base, with the pinnæ long and narrow, and terminating with a sharp point, and of a light green colour. A green-house species, from Cape of Good Hope.

L. aurita. See *L. Chilensis*.

L. Australis. A green-house species, with fronds from twelve to eighteen inches high, the fronds pinnate, with pinnæ of a lanceolate obtuse form; the fertile pinnæ much longer and contracted, and of a dark green colour. A native of South Africa.

L. blechnoides. This grows from six to twelve inches high, with the fronds cut into roundish lobes to the midrib, and alternate, on each side, the fronds are rather of a lanceolate form, and roundish at the apex; the fertile ones contracted, it has a dark green colour, and coriaceous texture. It is a native of Chili, and will do well in a green-house.

L. capensis, *Blechnum capensis*. This has a creeping rhizome, producing fronds from three to four feet high, and pinnated; the barren fronds are coarse and strong, of a dark green colour, the pinnæ are six inches long, rather heart shaped, the edges wavy, and serrated; the pinnæ of the fertile fronds are long, narrow, and entire at the edges, but much contracted. A green-house species, from the Cape of Good Hope.

L. carnifolia. See *Onychium auratum*.

L. chilensis. A hardy species, with pinnate fronds, from one to two feet high, and very strong plants are even more than twice that length, it grows in a rosulate like form, and not unlike *Blechnum spicant*, the fertile fronds are much contracted, the whole plant of a dark green appearance, it is known under several other names, among which are the following:—*L. aurita*, *L. ornifolia*, *L. striata*, *L. tuberculata*, and *L. vestita*. It is a native of Chili.

L. ciliata. This is a pretty species, having pinnatifid fronds, with edges of the pinnæ hairy and jagged, of a light green colour, and borne on an upright caudex, a foot or more in height. A stove fern from New Caledonia.

L. Colensoii. See *L. elongata*.

L. crenulata. See *L. Germanii*.

L. cycadifolia. This has a stout and massive stem, and grows to the height of four feet, with pinnatifid fronds, from two to three feet long, the pinnæ of a dark green colour on the upper side, and rather of a bright tawny colour below, it has the appearance of being a large variety of *Magellanica*. A green-house species, from Chili and Brazil.

L. decomposita. See *Onychium aureum*.

L. discolor, *Hemionitis discolor*, *Onoclea discolor*.

This has a stout stem, and growing with age two or three feet high, with fronds from two to three feet long, of a leathery texture, and deeply pinnatifid, the pinnae are linear oblong, of a dark shining green colour above, and paler below, sometimes approaching a reddish brown; it has dark-coloured stipes, and are covered, as well as the crown, with dark reddish brown hairs. A green-house species, from New Zealand.

L. discolor bi-pinnatifida. The fronds of this variety are, as the name implies, bi-pinnatifid, from twelve to twenty-four inches long, of an arching habit, the pinnae are very closely set, so as to overlap each other, and are cut to the rib, the outer sub-division being slightly crisped. A green-house variety, from Melbourne.

L. dolobryensis. A strong-growing robust species, with pinnate fronds, the pinnae serrated, and of a bright green colour. A stove species, from New South Wales.

L. dura, L. rigida. The fronds of this species are from six to nine inches long, and pinnatifidly divided, of a lanceolate form, stiff and erect in growth, of thickish texture, and sturdy habit, and deep green colour. A green-house species, from Chatham Islands.

L. elongata, L. Colensoi. A green-house species, with the fronds deeply pinnatifid, from twelve to eighteen inches long, the pinnae about four inches long, and one-and-a-half inches broad, the lower ones forming a wing down the stipes, and of a dark green colour. Native of New Zealand.

L. filiformis. See *Stenochlana heteromorpha*.

L. fluviatilis. A pretty-growing plant, from twelve to eighteen inches long, the fronds drooping and

pinnate, the pinnae round, and alternate of a dark green colour, and clothed with a profusion of reddish chaffy hairs, and the rachis clothed with the same. Native of New Zealand, and nearly hardy.

L. f. multifida. A branching form of the preceding. Also from New Zealand.

L. Fraseri. This has an upright stem, which grows to the height of two feet, with the fronds bi-pinnatifidly divided into fine segments, from one to two feet long, and bright green on the upper side, the under side fertile, are covered with the red sori. A green-house species, from New Zealand.

L. Germanii, L. crenulata. This has fronds from three to nine inches long, and pinnate, the pinnae sessile, obtuse, and crenulate, the fertile fronds are contracted, and longer than the barren ones, the base of the stipes are clothed with light brown chaffy scales. A cool house species, from Chili.

L. gibba. This forms an erect stem, from one to three feet high, with fronds eighteen to twenty-four inches long and spreading, deeply pinnatifid, and of a bright green colour, the fertile fronds are about the same length, but very much contracted, this is among one of the most useful of the genus, being good for exhibition, or decorative purposes. A stove species, from New Caledonia.

L. gibba bella. A very pretty variety of the preceding, the fronds becoming branched, and tasseled. Native of New Caledonia.

L. gibba cornuta. A variety with the pinnae ending in little horn-like points. Of Garden origin.

L. gibba crispa. This is a crisped variety of the species, the fronds dense, and crisped, and not such a strong grower. Of Garden origin.

L. Gillesii. This has an erect stem, with fronds from twelve to eighteen inches long, and pinnate, the barren ones of an oval lance-shaped form, the pinnæ obliquely heart shaped, and cut at the margin, the fertile ones are of the same height, but narrow, contracted, and sharp pointed. A green-house species, from Brazil.

L. glandulifera. This grows about two feet high, the fronds pinnate, the barren ones have the pinnæ of a lengthened oblong shape, and of a leathery texture, the stem of each pinnæ is petiolated, and a gland might be seen on the upper side, at the base of each petiole, the fertile fronds contracted. A stove species, from Java.

L. lanceolata, *Stegania lanceolata*. A low-growing species, scarcely ever above nine inches high, it has barren pinnatifid fronds, and pinnate fertile ones, of a dark green colour, and lanceolate form. A green-house species, from the Antipodes.

L. L'Hermenieri. This is a perfect miniature tree fern, with a stem about six inches high, the fronds from six to nine inches long, and nearly the same width the entire length, they are pinnatifid, and the basal pinnæ much attenuated; when young, of a beautiful crimson, which changes with age to a deep green. A stove species, from Caraccas and Brazil.

L. Magellanica, *L. obtusa*, *L. obtusifolia*, *L. seligera*. This has a stout stem, growing about three feet high, the crown and stipes are clothed with a dense mass of long, narrow, dark brown, rusty scales, the fronds from one to two feet long, and pinnate, of a leathery texture, the pinnæ entire, of a linear oblong and obtuse form, dark green on the upper side, and

inclining to a rusty brown below. A green-house species, from the Straits of Magellan.

L. nigra. A low-growing species, with fronds from four to six inches long, pinnatifid at the base, and only slightly lobed at the apex, of a very dark green colour, the stipes densely clothed with a pubescence, the fertile fronds much contracted. A green-house species, from New Zealand.

L. nuda, *Onoclea nuda*, *Stegania nuda*. This has pinnate fronds, about eighteen inches high, the barren fronds broadly lanceolate, and of a light green colour, the pinnae of the fertile fronds are narrow, and of a sickle form, the rhizome is many crowned. A green-house species, from Van Dieman's Land.

L. nuda pulcherrima. A variety of the preceding, having the top of each pinnae tasseled, or crested. A green-house variety, of Garden origin.

L. obtusa. See *L. Magellanica*.

L. obtusata. An elegant dwarf-growing species, with a tuft of narrow, pinnatifid, lanceolate, sterile fronds, attenuated at the base, and apex, and has close-set lobes, and strongly curved in a falcate manner, the fertile fronds are erect, and broader than the sterile, but of the same outline, in its tapering form. A green-house species, from New Caledonia.

L. obtusifolia. See *L. Magellanica*.

L. onocleoides. This has a slender upright caudex, or stem, which is in strong plants twelve inches high, the fronds from one to two feet long, and pinnatifid, the barren fronds of an ovate lanceolate form, and wavy at the edges, and roundly cut at the margin towards the top of the pinnae; the fertile pinnae are much contracted. A stove species, from the West Indies.

L. ornifolia. See *L. chilensis*.

L. Patersonii. This grows about a foot high, the barren fronds simple, and of a rigid texture, and lance-shaped form, and with the edges serrated; the fertile ones are long, and narrow, sometimes becoming pinnatifid. A green-house species, from Australia.

L. procera, St. junia procera, Osmunda procera. A rather thick-growing species, with fronds from one to two feet long, and pinnate, the pinnæ two to three inches long, and about one inch broad, of an obtuse form, and a beautiful dark green colour, and coriaceous texture; the pinnules of the fertile fronds are linear; the base of the stipes scaly. A green-house species, from the Antipodes.

L. propinqua. See *Stenochlæna heteromorpha*.

L. rigida. See *L. dura*.

L. robusta. See *L. Magellanica*.

L. setigera. See *L. Magellanica*.

L. striata. See *L. chilensis*.

L. tuberculata. See *L. chilensis*.

L. vestita. See *L. chilensis*.

L. volubilis. See *Salpichlæna volubile*.

L. vulcanica. A rather dwarf-growing species, with fronds from six to twelve inches long, of a lanceolate form, and pinnatifid, the pinnæ from one to one-and-half inches long and obtuse; the fertile fronds contracted, and of a dark green colour, and clothed at the base with black, chaffy scales. A green-house species, from New Zealand.

L. zamiioides. This has a massive stem, from one to four feet high, and clothed with large deep black chaffy scales, the fronds from one to two feet long, pinnate, and of a coriaceous texture, and a very deep green colour. A stove species, from South Africa.

Lomariobotrys. See *Stenochlæna*.

Lomariopsis heteromorpha. See *Stenochlæna heteromorpha*.

LONCHITES.

Lonchites *Linnaeus*. From *lonch*, a lance, in allusion to the form of the fronds. The two species here mentioned are fine bold-growing plants, of easy culture, and grow best in a mixture of loam and peat, and are generally propagated by dividing the plants; the sori in this genus is scattered over all the under part of the fronds when fertile.

L. natalensis. A fine bold-growing species, tri-pinnately divided into long segments, six to twelve inches long, and slightly cut into roundish lobes, and tapering to a sharp point, of a soft texture, and light green colour, and slightly clothed with short hairs. A stove species, from Natal.

L. pubescens. This also is a strong-growing species, from three to four feet long, and tri-pinnately divided into pinnatifid segments, and clothed with soft hairs, and of a light green colour. A stove species, from the Mauritius.

Lophidium. See *Schizaea*.

LOPHOLEPIS.

Lopholepis *J. Smith*. From *lophos*, a crest, and *lepis*, a scale, in allusion to the spore cases. A small genus separated from *Goniophlebium*, and of a dwarf habit, with small ereeping rhizomes, well suited for growing on the trunks of tree ferns, and in baskets, they are best grown in fibrous peat, and easily propagated by divisions.

L. piloselloides, *Goniophlebium piloselloides*. This

has simple fronds, from two to three inches long; the sterile fronds are ovate, the fertile ones are narrower and longer than the sterile, and are clothed with light coloured hairs, and has a slender creeping rhizome. A stove species, from the West Indies.

Lophosoria glauca, and *L. pruinata*. See *Alsophila pruinata*.

Lorinseria. See *Woodwardia*.

Lotzea. See *Diplazium*.

LOXSOMA.

Loxsoma. From *loros* slanting, in reference to the venation. A genus with only one species in cultivation, and that rarely seen, it grows well with the same treatment as the green-house *Polypodium*, and it is best propagated by dividing the plants.

L. Cunninghamii. This grows from twelve to fifteen inches high, of a triangular form, and three or four times divided into rather obtuse segments, of a light green colour. A green-house species, from New Zealand.

LYGODICTYON.

Lygodictyon, *J. Smith*. From *Lygodium*, and *dictyon*, a net, the net-like veins separating it from that genus, on that account. The culture recommended for *Lygodium* will suit the requirements of this genus.

L. Forsterii. A very handsome climbing species, producing bi-pinnate fronds, which are several times forked in a dichotomous manner, the pinnæ of an oblong obtuse form; the sterile fronds much longer than the fertile, but the latter are much the broadest;

the sori dark brown and exserted. A stove species, from the Polynesian Islands.

L. heterodoxum. A larger growing species than the preceding, having the pinnæ palmately lobed, and of a dark green, the stipes of a straw colour. A stove species, from Guatemala.

LYGODIUM.

Lygodium, Swartz. The name derived from *lygodes*, flexible, in reference to the twining habit of the plant, the chief character of this genus is the climbing habit of the plants, and the marginal sori, which stands out boldly around the pinnules; they make grand plants for covering pillars, and trellises, they grow well in equal parts of peat, loam, and sand and are propagated both by division and spores.

L. dichotomum. See *L. flexuosum*.

L. flexuosum, *L. dichotomum*. The fronds of this are rather larger than the rest of the species, the pinnæ are opposite, narrow, and twice forked, and frequently measure twelve inches long, while the fronds grow to an indefinite length, it is a fine plant for pillars, &c., in the fernery. A stove species, from the Indian Archipelago.

L. Japonicum, *L. microphyllum*, *L. scandens*. This has branching fronds, with the pinnæ palmately lobed, and of a lightish green colour, the sori situated on the apex of each lobe, it does well in a cool house, being a native of both China and Japan.

L. microphyllum. See *L. Japonicum*.

L. palmatum. This is not so long in its growth as some of the genus, the fronds are palmate divided into three or five parts; the barren ones broad and somewhat jagged; the fertile ones contracted into

finger-like points, which gives it a graceful appearance. A hardy species, in the South and West, but as a rule is best grown in the green-house. Native of North America.

L. polystachum. A stove species having large fronds, with the pinnae from six to twelve inches long, the pinnules of an obtuse form three or four inches long and one inch broad and deeply lobed, the lobes which are much contracted towards the apex; upon the underside are produced the brown sori, the stems are clothed with a white woolly substance. Native of the Indian Archipelago.

L. scandens. See *L. Japonicum*.

Marginaria. See *Campyloneur*.

MARATTIA.

Marattia, Swartz. Named in honour of J. F. Maratti of Vallombrosa, in Tuscany, a writer on ferns. A strong growing genus, and generally known as pseudo ferns, making as they do large fleshy crowns, and large stipes; these resemble greatly the genus *Angiopteris*; they grow best in a mixture of equal parts of loam and peat, with a liberal addition of river sand, as their native haunts being in swamps, they grow more luxuriant if they are partially stood in water, propagated by divisions when obtainable, the spores seldom ever get beyond the prothallus stage of growth, which accounts greatly for their not being often seen in collections.

M. alata, *M. Laucheana*, *Dicostegia alata*. This grows from three to four feet high and tri-pinnately divided; the pinnules sometimes toothed, and at others entire, the rachis is winged throughout its entire

length, this will do in a green-house temperature. It is a native of the West Indies.

M. Ascensionis. See *M. fraxinea*.

M. Cooperii. A bold and distinct species, four or five feet high, bi-pinnate, and sometimes tri-pinnate, the pinnules large of an oblong form and pointed; deeply but irregularly toothed, of a leathery texture, and dark green colour. A stove species, from New Caledonia.

M. elegans. A fine species, in large specimens grow to the height of six feet, bi-tripinnately divided into broad pinnules, of a dark green colour, this will do either in a warm green-house or stove. It is a native of Norfolk Island, and New Zealand.

M. fraxinea, *M. Ascensionis*, *M. purpurascens*. This grows from two to three feet high, bi-pinnate, and sometimes tri-pinnate, having broad pinnules, undulated at the margins, and very dark green colour. A stove species, from the Ascension Islands.

M. laxa, *M. macrophylla*. A tall-growing species, reaching to the height of six feet or even more, and the pinnæ nearly two feet long, the pinnules six or seven inches long, and about one inch broad, and serrated at the edges. A stove species, native of Mexico.

M. macrophylla. See *M. laxa*.

M. purpurascens. See *M. fraxinea*.

MENISCIUM.

Meniscium, *Schreber*. From *meniskos*, a crescent, in allusion to the form of the sori. A small genus and as their native habitat being in swampy places, they delight in plenty of water at the root; they all grow best in loam, and sand; *simplex* being a dwarf-growing

plant, makes a nice plant for a Wardian case, they are propagated by spores, and divisions, and well worth a place in every fernery.

M. dentatum. This has pinnate fronds, from two to three feet high, and sometimes more, the pinnæ six or seven inches long, and about one inch broad, and of a light green colour. A stove species, from Brazil.

M. giganteum. A very large-growing species, having broad simple fronds, of a lightish green colour. A very distinct species, and requires a stove temperature. It is a native of South America.

M. palustre. A pinnate species, with fronds three or four feet long, and the pinnæ six or eight inches long, and about two inches broad, of a very dark green above, and covered below with chestnut coloured sori. A stove species, from Brazil.

M. simplex. This is one of the dwarfest of the species, only growing about nine inches long, simple and auriculate at the base, the fertile ones are about half the width of the barren ones. A green-house species, from Hong Kong.

Mertensia. See *Gleichenia*.

Microbrachys. See *Aspidium*.

MICROLEPIA.

Microlepia, Presl. Named from *micros*, small, and *lepis*, a scale, in reference to the sori. A genus separated from *Davallia* on account of the half cup-like form of the indusium, which is placed in from the margin; *hirta cristata*, of recent introduction, is a nice crested form. They grow well in fibrous peat and sand, and are of easy culture, propagated by spores and divisions, and are well worth growing.

M. anthriscifolia. A very pretty little creeping species, with the fronds about six inches long, and three broad, tapering to a point, and of a beautiful green colour. A green-house species, from South Africa.

M. hirta. A dwarf-growing and spreading species, of a soft pleasing green colour, and tri-pinnate, growing about a foot high, there is a crested variety, which is very handsome. A stove species, from the South Sea Islands.

M. hirta cristata. A crested variety, with all the rachides of the pinnæ branched, and subdivided, near their extremities. A stove fern, introduced from the New Hebrides.

M. hispida. See *Acrophorus hispidus*.

M. platyphylla, *Davallia platyphylla*, *Davallia lonchitidea*. This is a strong-growing plant, which grows from two to three feet high or even more, and has bi-tripinnatifid fronds; with broad pinnæ from six to twelve inches long, and nearly divided to the rachis, of a bright green above, and covered below with large reddish-brown sori. Native of the East Indies, but will do well in a green-house temperature.

M. scabra, *Davallia scabra*, *Davallia villosa*. A green-house species, from six to eighteen inches high, having pinnate fronds, with toothed pinnæ, and rather auriculate on the upper margin, and is of a very dark green colour. Native of Japan.

M. strigosa, *Davallia strigosa*. This is another Japanese species, growing two and sometimes three feet high, with the fronds of a bright green colour, and bi-pinnate, the pinnæ four to six inches long, the pinnules divided into two parts, and crenated. A green-house species.

MICROSORUM.

Microsorium, *Feei*. From *mikros*, small, and *sorum*, the sori, referring to the small minute sori. A small genus with only one species, the chief character is the small sori scattered over the under surface, it is widely distributed, being found in the East and West Indies, Australia, and the Malay Islands, the species grows in fibrous peat and sand, and are propagated by spores and divisions.

M. irioides, *M. irregulare*. This has simple fronds, growing from one to two feet high, and about two inches broad, of a very stiff habit, and light green colour, and profusely scattered all over the under side, with very small sori, of a brown colour, it is widely distributed. A green-house species, from the East and West Indies and various other places.

M. irioides cristata. A variety of the preceding, with the apex densely tasseled. Native of the East Indies.

Microstaphylla. See *Acrostichum*.

Microstegia. See *Callipteris*.

MOHRIA.

Mohria, *Swartz*. In compliment to M. Mohr, an eminent botanical writer. A small genus of elegant ferns, thriving well in a green-house temperature, and are well adapted for Wardian cases, they are best grown in a compost of peat and sand, with an addition of small lumps of sandstone, and are propagated by dividing the plants.

M. caffrorum. See *M. thurifraga*.

M. thurifraga, *M. Caffrorum*. A pretty species, growing from six to eighteen inches high, erect

and bi-pinnately divided, and the pinnæ laciniated, of a darkish green colour, the stipes and rachis are clothed with reddish scales, the fertile fronds are contracted. A green-house fern, from South Africa.

M. thurifraga var *achillæfolia*. The fronds of this variety are seldom more than half the length of the preceding, the barren fronds are prostrate and shorter than the fertile ones, which are erect. This also is introduced from South Africa.

Mongonia. See *Pteris*.

Myriopteris. See *Cheilanthes* and *Nothochlœna*.

Neottopteris. See *Thamnopteris*.

NEPHRODIUM.

Nephrodium, *Michaux*. From *nephros*, a kidney, in allusion to the kidney-shape indusium. A genus of ferns whose chief distinction from *Lastrea* is the joining of the veins, many of the species are handsome-growing plants; *molle*, an old inhabitant of our stoves, appears where once grown, almost as a weed, and has contributed several tasseled varieties, but *molle corymbiferum* is one of the best, all the species are of easy culture, and grow well in peat, loam, and sand, and are easily increased by divisions and spores.

N. articulatum. A fine species, with pinnate, fronds, smooth, and of a bright dark green colour from one to three feet or more in height, and has a decumbent stem. A stove fern, from Ceylon.

N. Barometz. See *Cibotium Barometz*.

N. cuspidatum. A stove species from one to two feet high, and pinnate, the pinnæ lanceolate, and slightly serrated, and nearly the same length throughout the length of the fronds; the terminal pinnæ more deeply

serrated, and of a dark green colour. A stove species, from Ceylon.

N. cyatheoides. This has fronds from one to two feet long and pinnate, with long and broad pinnae, which are regularly toothed, and of a light green colour. A stove species, from the Sandwich Isles.

N. decomposita. See *Lastrea decomposita*.

N. erythrosora. See *Lastrea erythrosora*.

N. glandulosum. This grows from twelve to fifteen inches high, and pinnately divided into lanceolate pinnae, of a shining green colour; the sori forming a noticeable feature on the back of the fronds, and of a yellow colour. A stove species, from the Isle of Luzon.

N. Hookerii. The fronds of this species grow from one to two feet long, the lower pair of pinnae very small, and lengthening upwards, and again tapering to a point on the top of the frond; the pinnae are crenated at the margins, and pale green in colour, it is a native of the East Indies, and will do either in stove or green-house temperature.

N. lanosum. See *Nothochlæna vestita*.

N. lucidum. This grows from twelve to eighteen inches high, on a short creeping rhizome; and has slender stipes of a dark green colour, the fronds are bi-pinnate, and five to six inches broad in the middle, and has from twelve to twenty pair of pinnae, and the top of the frond pinnatifid, of a light green colour, and firmish texture. A stove species, from Madagascar.

N. molle, *Aspidium molle*, *A. violascens*. A very common species in stoves, where it has been once introduced, and seems to grow spontaneously, it grows from one to two feet high, the fronds pinnate, the pinnae deeply lobed and covered with a soft pubescence,

and rather of a bluish green colour. A stove fern, from South America.

N. molle corymbiferum. A branched and densely tasseled variety of the preceding, of very stiff and erect habit. A stove plant, from Western Africa.

N. multilineatum. This has pinnate fronds, growing about two feet high, with lanceolate pinnæ, deeply serrated, and of a bright green colour, and the veins very conspicuous, it has a creeping caudex, and requires a stove temperature, being a native of Ceylon.

N. pteroides. A handsome species having the fronds pinnately divided, the pinnæ obtusely lobed, and of a rich green colour, the sori forming a band around the margin on the under side; it is a stove species, from one to two feet high, and native of the East Indies.

N. terminans. This species resembles *Molle*, but is not so densely clothed as that species with the pubescent like covering, and the pinnæ ending in an abrupt manner, this also is a stove fern from the East Indies.

N. truncate. A free-growing species with fronds from one to two feet long, and pinnate, the pinnæ regularly and obtusely toothed, and has a feathery like appearance. A warm green-house species, from the Sandwich Isles.

N. unitum. A strong and tall-growing species, the fronds in some instances grow to the height of three feet, and pinnate, of a vivid green colour, and slightly hairy, the pinnæ obtusely crenated. A green-house species, from Tropical America.

N. venustum. This grows from one to two feet in height and pinnate, the pinnæ six inches long, and toothed at the margin, and of a dark green colour, the

base of the stipes clothed with darkish scales. A stove species, from Jamaica.

NEPHROLEPIS.

Nephrolepis, Schott. From *nephros*, a kidney, and *lepis*, a scale, in reference to the form of the sori. A genus of handsome plants, with the pinnae articulated to the rachis, that is, set in a little joint, which is easily noticeable if the plants are let get dry the pinnae will fall off, and leave the rachis standing, another feature is the small stiff wiry rhizomes, while *pluma*, *tuberosa*, and *undulata*, produce small tubers, the first and last mentioned are deciduous, but in this deciduous state water must not be entirely dispensed with. In this genus are some species suitable for baskets, planting on the rock-work, and some make nice plants for pots, for the adornment of the halls, corridors, &c., they are propagated by the little wiry rhizomes, by dividing the plants, and by spores, some of the species do well for cutting, and all grow well in peat, loam, and sand, of rather a fibrous nature, and require plenty of water when growing.

N. cordifolia. See *N. tuberosa*.

N. davallioides. A fine-growing species, with fronds from two to five feet long, and pinnate, and producing pinnae nearly to the base, of a lanceolate acuminate form; the upper part of the frond generally fertile, when the pinnae are narrower and longer than the sterile, and has deeply crenated lobes with a single sorus on the apex of each, the rhizome small and wiry. A stove species, from the Malay Islands.

N. davallioides dissecta. A small variety of the preceding, with the fertile pinnae more deeply lobed,

and these lobes sometimes overlap each other. A stove variety, of Garden origin.

N. davallioides furcans. This variety is a crested form of the normal type, and of better habit. A stove variety.

N. Duffii. A very curious fern, with fronds from twelve to eighteen inches high and pinnate, the fronds much branched and crested; the pinnæ small, and produced in pairs, one overlapping the other, the upper one the largest, of a roundish form, toothed and thickly set on the rachis; the stipes are slender, and covered with reddish brown scales. A stove species, from the Duke of York's Island.

N. ensifolia. This grows from two to three feet long, of rather arching habit, the pinnæ sword shaped, and of a lightish green colour. A stove species, from the East Indies, and Tropical America.

N. exaltata. This is one of the commonest of the species, and also very quick growing, and attains to the height of three feet, and pinnate; the pinnæ lanceolate one to two inches long, of a pale green colour. Native of Tropical America, but will do well in a green-house temperature.

N. falciformis. The fronds of this species are from two to three feet long, of rather an arching habit, and pinnate, the pinnæ broad and falcate, and slightly eared at the base, and of a dark green colour. A rather rare stove species, from Borneo.

N. hirsutula. A pinnate species, one to two feet long, of a lanceolate form, the pinnæ two to three inches long, and of a light green colour; the frond slightly covered with reddish brown scales. A stove species, from the East Indies.

N. peetinata. This grows from two to three feet

long, and of a drooping habit, the pinnæ much crowded, of an oblong form, and toothed at the edges, and of a light green colour. A stove species, from Tropical America.

N. pluma. This is one of the few species of this genus that are deciduous, the fronds are three to four feet long, of a pendulous habit, and pinnate; the pinnæ are about two inches long, sessile, and articulated, with the rachis; the middle of the frond fertile, while the base and apex are sterile, it produces tubers about the thickness of one's finger. A stove species, from Madagascar.

N. tuberosa, *N. cordifolia*. This also is a tuberous species, from one to two feet high, narrow and pinnate, the pinnæ roundish at the ends, and serrated at the edges, and dark green in colour, this makes a nice basket plant. A stove species, native of the East Indies.

N. undulata. A rather dwarf-growing species, scarcely exceeding eighteen inches high, of a linear lanceolate form, and pinnate, it has narrow oblong and pointed pinnæ, of a light green colour, and crenated; the fronds are deciduous; it also produces small tubers. A stove species, from West Africa.

Neurocallis. See *Acrostichum*.

Neuronia. See *Oleandra*.

Nevrodium. See *Pteris*.

NIPHOBULUS.

Niphobulus Kaulfuss. From *niphobolos*, covered with snow, the indusia appearing as covered with snow. A genus of simple and entire fronded species, covered with a dense covering of stellate scales, the fronds are generally of two kinds, fertile and barren; the former more contracted, the sori of a reddish-brown colour,

all the species make nice plants for the Wardian case, for planting on rocks, and when grown in pots should be planted on little cones of peat, which soon forms large masses, the rhizomes are of a wiry nature. *Lingua corymbiferum* is a fine crested form introduced from Japan, the species are easily propagated, by the creeping rhizomes.

N. angustatus. See *Pleopeltis angustata*.

N. bicolor, Polypodium bicolor. This has simple fronds, growing on a slender, wiry creeping rhizome, from three to six inches long, of a spatulate form, and of a dark green colour on the upper-side, and clothed underneath with a thick covering of silvery white scales. A green-house species, from New Zealand.

N. Chinensis. See *N. lingua*.

N. heterachis. This has simple fronds, somewhat similar to *lingua*, but the fronds are shorter, and more ovate in form, and rounding at the base; it has a thin and fast ereeping wiry rhizome clothed with spreading brown scales; the fronds somewhat of a mealy appearance. A green-house species, from very considerable elevations in India.

N. lineare, Polypodium lineare. The fronds of this species are simple, of an ovate lanceolate form, and of a lightish green colour, and thin texture, and borne on a small rigid rhizome. A green-house species, from Japan.

N. Lingua, Polypodium lingua, N. chinensis. This is the strongest growing of the species; with the fronds simple, and very leathery in texture, of a lightish green colour on the upper side, and whitish underneath, the sori placed thickly on the upper part of the fronds, which are ovate lanceolate in form. A green-house species, from Japan.

N. lingua corymbifera. A variety of the preceding, with the ends of the fronds terminating in broad tassels. Native of Japan.

N. macrocarpus. See *Pleopeltis angustata*.

N. pertusus, Polypodium pertusus. This grows about six inches long, with the fronds simple, of a thick and fleshy substance, and dark green colour, the barren fronds rather oblong and obtuse, and the fertile ones lanceolate and narrow; the sori thickly placed on the upper part of the frond, and dark brown colour. A stove fern, from the East and West Indies.

N. rupestris, N. serpens, Polypodium rupestris, Polypodium serpens, Craspederia rupestris, C. serpens. A pretty little fern, with fronds two or three inches long, the barren fronds spatulate, and dark green colour, the fertile ones rather longer and narrow, the creeping rhizome is clothed with brown chaffy scales. A green-house plant, native of Australia.

N. Serpens. See *N. rupestris*.

N. sphærocephalus. See *Pleopeltis angustata*.

Niphopsis. See *Pleopeltis angustata*.

NOTHOCHLÆNA.

Nothochlæna, R. Brown. The name derived from *nothos*, spurious, and *chlaina*, a cloak, in reference to the sori being frequently only covered, with the paleæ of the fronds. A very handsome genus of ferns, with some of the species suitable for cases, baskets, and pots, some of the species are densely clothed with long woolly hairs, or scales and others are clothed with a farinose powder, they are closely related to the genus *Cheilanthes*. In growing these species, care should be taken not to wet the fronds, they are best grown in fibrous peat, and sand, with

small lumps of sandstone, and are propagated by dividing the plants, and also by spores, some of the species were introduced in the middle of the last century, this genus is widely distributed, both in temperate, and tropical climates.

N. argentea. A pretty little species, about six inches high, and having bi-pinnate fronds, of a triangular form, and covered with a silvery white powder; the stipes and rachis shining black, and has a creeping rhizome. A stove species, from South America.

N. canariensis. This grows from twelve to eighteen inches high, the fronds bi-pinnate, and of an ovate lanceolate form; the pinnules obtuse and entire, deep green on the upper side, and densely clothed below, with large and long light brown scales. A green-house species, from the Canary Islands.

N. cheilanthoides. See *Cheilanthus microphylla*.

N. chrysophylla. See *N. flavens*.

N. crassifolia. A pinnate species with the fronds about a foot long, and has a white scaly rhizome; the pinnules are covered beneath, with white fringed scales, which turn with age to a brown colour; the sori form a black border around the margin of the pinnules. A stove species.

N. distans. This grows about six inches high, and has bi-pinnate fronds; the pinnules opposite; and sessile, of a light green colour, and hairy; the stipes being thickly clothed with scales. A green-house species, from New Holland.

N. Eckloniana, *N. pumila*. The fronds of this species are tri-pinnate, and about a foot long, with the pinnules oblong, and blunt at the extremities, of a dark green on the upper side, and clothed below with

white silky-looking hairs and scales, which with age turn brown. A warm green-house species, from South Africa.

N. ferruginea. See *N. rufa*.

N. flavens. *N. chrysophylla.* The fronds of this species grow about a foot long, with slender black stipes, and small round pinnules of an intense bright green on the upper side, and thickly coated below, with a bright golden colour, through which the jet black sori protrude. A stove fern, from Tropical America.

N. frigida. See *Cheilanthes frigida*.

N. hirta. See *Cheilanthes hirta*.

N. Hookerii. See *N. nivea*.

N. incana. See *N. nivea*.

N. laevis. This is one of the handsomest of the genus, it has pinnate fronds from twelve to eighteen inches long, with roundish entire pinnules, deep green on the upper side and clothed below with long white woolly scales, which changes with age to a russet brown. A green-house species, from Mexico.

N. lanuginosa. This grows about six inches long, the fronds bi-pinnate, and with small pinnules, dark green on the upper side, and clothed underneath with very long silvery woolly scales, giving to the plant a shaggy appearance. A green-house species, from Madeira.

N. marantæ. This has bi-pinnate fronds about a foot high, of a broadish lanceolate form; the pinnules linear, obtuse and dark green on the upper side, and, clothed below with large coppery red scales. A green-house species, from Northern Italy, and parts of Asia.

N. nivea, *N. Hookerii*, *N. incana*, *Cincinnati Hookerii*. The fronds of this are tri-pinnate, and

about a foot long, with jet black stipes, the pinnae roundish, bright green on the upper side, and covered below with a white powder, through which the naked black sori protrudes. A stove species, from Tropical America.

N. pumila. See *N. Eckloniana*.

N. rufa, *N. rufa*, *Hemionitis rufa*. This grows from twelve to eighteen inches long, the fronds pinnate with the pinnae deeply cut, of a bright green on the upper side, and clothed with white woolly scales below. A stove species, from Mexico.

N. sinuata. This grows from one to two feet high, but more often seen the former height than the latter, the fronds pinnate; the pinnules broad and deeply lobed at the margin, of a light green colour on the upper side, and clothed with white woolly scales below. A stove species, from Mexico.

N. squamata. This seldom grows more than six inches high, with pinnate fronds; the pinnae dark green on the upper side, and clothed beneath with whitish scales. A stove species, from Mexico.

N. sulphurea. See *Cheilanthes Borsigiana*.

N. tenera. See *Cheilanthes tenuifolia*.

N. Trichomanoides, *Pteris trichomanoides*. The fronds of this are pinnate, and drooping, from twelve to eighteen inches long; the pinnules roundish, and dark green on the upper side, and clothed below with a coating of white scales, and powder, and margined with the black sori, which is very conspicuous. A stove species, from Jamaica.

N. vestita, *Myriopteris vestita*, *Cheilanthes vestita*, *Nephrodium lanosum*. A North American species, having fronds about six inches long, bi-pinnate, with roundish pinnules, densely set on the rachis, con-

spicuously and densely clothed, with rather long hairs, this is hardy in most situations.

OCHROPTERIS.

Ochropteris, *J. Smith.* From *ochros*, yellow, and *pteris*, a fern. A genus with only one species, and closely allied to *Pteris*, it has a decumbent rhizome, and decompound fronds, of a pendulous habit, it grows best in three parts peat, to one of loam, with an addition of sand, and are best propagated by dividing the plants, it requires plenty of heat and moisture, to grow it to perfection.

O. pallens, *Cheilanthes daralliioides.* This grows from one to two feet high, of a drooping habit, and many times divided into wedge-form pinnules, and usually with one sorus on each lobe, and of a pale shining green colour; the rachis of a yellowish colour, the stipes clothed at the base, with brown chaffy scales; the sori yellowish brown. A stove species, from the West Indies.

Odontoloma. See *Davallia*.

Odontosoria. See *Davallia*.

OLEANDRA.

Oleandra, *Cavanilles.* Named from its resemblance to some of the species, of *Oleander*. A genus of ferns, with most of the species of a climbing habit, by the extensions of their rhizomes, growing well on the dead trunks of tree ferns, or wire pillars, filled in with peat; *neriiformis* is however of a different habit, and forms a nice specimen; they grow best in a mixture of fibrous peat, and chopped sphagnum, with some sand; and best propagated by dividing the plants.

O. articulata. This has entire and linear lanceolate

fronds, tapering at each end, and of a shining green colour, from twelve to fifteen inches long and has a creeping rhizome. A stove species, from the East Indies, and the Mauritius.

O. hirtella. See *O. neriiformis*.

O. neriiformis, *O. hirtella*, *Ophiopteris verticillata*. This is not such a scandent growing plant, as the other species, but is none the less beautiful on that account; the fronds are simple, about twelve inches long, and are arranged in a verticillate manner, giving them the appearance of fans, and may easily be distinguished from the other species. A stove species, from India and South America.

O. nodosa. The fronds of the species, are about the same size and shape, as *articulata*, but the fronds are darker green, and the stipes blacker; it is a very free growing plant, and a stove species, from the West Indies.

O. Wallichii, *Aspidium Wallichii*, *Neuronia asplenoides*. A rather more rare species than the former ones, and has simple fronds, twelve to eighteen inches long, and one to one and a half broad, with the margins slightly undulated; the sori are large and very near to the midrib, of a lightish brown colour. A stove species, from the West Indies.

OLFERSIA.

Olfersia, *Radde*. Named after Olfers, a German botanist. A curious genus, with the species mentioned of very ornamental habits; it has two forms of fronds, the fertile fronds contracted, and wholly sporangiferous, it is best grown in equal parts of loam, and sand, and propagated by dividing the plants.

O. cervina, *Polybotrya corcovadense*. This grows

about two feet long, with the fertile and barren fronds dissimilar, it grows about two feet high, the former bi-pinnate, and contracted, and thickly studded with brown sori; the barren fronds pinnate and beautifully veined; the pinnæ broad and of a light green colour, and has a creeping rhizome. A stove fern, from the West Indies.

ONOCLEA.

Onoclea, *Linnaeus*. From *Onos*, a vessel, and *Kleio*, to enclose, referring to the apparent capsules. A genus of hardy ferns, from North America, and among some of the oldest inhabitants of our gardens, being introduced about the year 1699, the fronds are of two forms, the fertile ones are very much contracted, and rolled inwards, so as to form spikes of berry-like segments, it grows well in peat, and loam, or leaf mould, and propagated, by spores, and divisions.

O. munda. See *Lomaria nuda*.

O. obtusifolia. See *O. sensibilis*.

O. sensibilis, *O. obtusifolia*. This has two distinct kinds of fronds, the broad sterile ones contrast well with the contracted fertiles ones; the former are pinnate, the pinnæ pinnatifid of rather a thinnish texture, and light green colour, the fertile fronds are bi-pinnate, and has the segments rolled inwards, forming spikes of berry-like segments, and has an under ground creeping caudex; it is generally seen about twelve or fifteen inches high, and of a triangular form, it is both hardy, and deciduous. Native of North America.

ONYCHIUM.

Onychium, *Kaulfuss*. From *onyx*, a claw in reference to the shape of the lobes of the frond. A small genus

with only two species, and one of the species, *auratum* has been placed by different authors into other genus. It is an extremely rare plant, and takes its stand among the farinose species, and requires the temperature of a stove, while *lucidum* has stood severe winters out of doors at different times; it is a fine plant for a greenhouse, being useful for cutting purposes, as it stands so long without shrivelling, and with its finely-divided and deep green fronds, it is a good contrast to many arrangements. They are easily grown in equal parts of peat and loam, with a little sand added, and are best propagated by dividing the plants.

O. auratum, *Allosorus auratus*, *Lomaria aurea*, *Lomaria caruifolia*, *Pteris chrysocarpa*. A beautiful fern from one to two feet high, with the fronds several times divided; the barren ones into rather wedge-shape segments, the fertile ones more linear, and of a dark green colour above, the fertile ones are clothed underneath with a bright golden powder. A stove species, from the Malay Islands and other places.

O. capense. See *O. lucidum*.

O. Japonicum. See *O. lucidum*.

O. Krebsii. See *Scolopendrum Krebsii*.

O. lucidum, *O. capense*, *O. Japonicum*, *Leptostegia lucida*, *Trichomanes Japonica*. This is a finely-divided species, of a beautiful dark green colour with linear segments, and grows from one to two feet long, with an under-ground creeping rhizome. A greenhouse species, from Japan and other places.

OPHIOGLOSSUM.

Ophioglossum Linnæus. From *Ophis*, a serpent, and *glossa*, a tongue, in reference to the shape of the fronds. A small genus with only one of the Tropical species in

cultivation, the species here mentioned is found in different parts, and varying much in the size of the fronds, those from Madagascar are the largest forms, where they are found as an epiphyte on the trees, and forming the long ribbon-like fronds, in some instances ten to twelve feet long, and two feet wide, *O. vulgatum*, commonly known as the adder's tongue fern, is the British representative of this curious genus, which is not rolled up as is the case in most genus, but grows straight; they are best grown in baskets, with fibrous peat, and sphagnum, and require plenty of water when growing, they are best propagated by dividing the plants.

O. Japonicum. See *Lygodium Japonicum*.

O. pendulum. A curious-growing plant, the fronds are of a bright green colour, the fertile portion of the frond growing from the mid-rib of the other part, in the way of our native species *vulgatum*. The fronds are in their native haunts from six to twelve feet long, and two feet broad. It is a stove species, from Ceylon, Madagascar, and other places.

Ophiopteris verticillata. See *Oleandra neriiformis*.

OSMUNDA.

Osmunda Linnæus, from *Osmunder*, one of the names of Thor, a Celtic deity. A genus of hardy deciduous ferns, commonly called the royal or flowering ferns, on account of the flower-like form of the fertile segments, there is one species, *regalis*, native of our island, which makes a grand plant, if planted in a swampy place; all the species grow freely in such situations, in a mixture of peat, loam, and river sand. Propagated by dividing the plants, and also by spores.

O. Barbara. See *Todea Africana*.

O. carolinea. See *Woodwardia areolata*.

O. cinnamonea. This grows from one to three feet high, and bi-pinnate, with sterile and fertile fronds, the former rather drooping, and of a glaucous green colour, the latter wholly sporangiferous, and erect; growing from the centre of the plant, and covered with reddish brown hairs, it is deciduous and hardy. Native of North America, and various other places.

O. cinnamonea angustata. A distinct variety of the preceding, and differs from it by being more erect, darker green, narrower, and smaller in every way. A hardy variety, and deciduous. Native of Canada.

O. claytoniana, *O. interrupta*. A curious species, growing from one to three feet high, bi-pinnate, and of a bright green colour, the fronds, when barren, are more spreading, but when there are any fertile pinnae, the fronds are more erect, and come between the barren pinnae, usually in the middle of the fronds, but even that is not constant, as they appear to have an interruption in their growth. A hardy deciduous species, from North America and Canada.

O. gracilis. This grows about two feet high, with blunt oblong pinnae, the fronds bi-pinnate, the pinnae nearly opposite the apex of the frond contracted, and spore bearing. It is hardy and deciduous, from Canada, and North America.

O. interrupta. See *O. Claytoniana*.

O. obtusiloba. A tall-growing species from two to three feet high, with elegant lobed fronds of a light green colour, this also is deciduous and hardy, being a native of North America.

O. palustris. This is very much like *spectabilis*, but is evergreen, and that species is deciduous. A green-house species, from Brazil.

O. phyllitidis. See *Anemydictyon phyllitidis*.

O. procera. See *Icmaria procera*.

O. spectabilis. This is like a slender form of our native species, *regalis*, the pinnae are very much smaller and a very distinguished feature is, the young fronds have a reddish purple colour. A hardy species, and deciduous, from North America.

O. struthiopteris. See *Struthiopteris germanica*.

O. tomentosa. See *Ancimia cheilanthoides*.

Pachypleura pedata. See *Humata pedata*.

Paeilopteris crispatum. See *Cyrtogonum crispatum*.

P. flagelliformis. See *Cyrtogonum flagelliforme*.

Panicularia Berteri. See *Thrysopteris elegans*.

PARAGRAMMA.

Paragramma, Moore. From *para*, near, and *gramma*, writing, in allusion to the sori. There is but one species, in this genus, the chief features are the sori, placed near the margin, and being deeply embedded, so much as to form umbones on the upper surface, it is best grown in baskets of fibrous peat and sphagnum, and propagated by dividing the plants.

P. longifolia. *Grammitis longifolia.* This has simple fronds, from nine to fifteen inches long, of a linear lanceolate form, and obtuse, of a coriaceous texture, and dark green colour, the sori of an oblong linear form, and placed near the margin, and parallel with it, and so deeply imbedded to form protuberances on the upper surface, and has a short and slender creeping rhizome. A stove species, from the Isle of Luzon, and other places.

PELLÆA.

Pellæa Link. Named from *pellos*, dark, in allusion to the dark coloured stipes. A genus of low-growing ferns, closely allied to *Platyloma*, and like that genus produces the sori on the margin of the pinnae, the fronds of the species are generally of a pedate form, and some of the species are hardy, for propagation and culture. See *Platyloma*.

P. atropurpurea. See *Platyloma atropurpurea*.

P. Brownii. See *Platyloma Brownii*.

P. calomelanos. See *Platyloma calomelanos*.

P. cordata. See *Platyloma cordata*.

P. falcata. See *Platyloma falcata*.

P. flexuosum. See *Platyloma flexuosum*.

P. intramarginalis. See *Cassabeera intramarginalis*.

P. profusa. See *Cheilanthes profusa*.

P. mucronata. *Platyloma mucronata.* This grows about a foot high with fronds much divided, and of a lovely pale blue: or glaucous tint, and of very free growth. A hardy species, from the Yosemite valley.

P. ornithopus. A small-growing species, from three to six inches high, delicately cut into small oblong pinules, of a glaucous tint, and set on a slender black stipe. A green-house species, from California.

P. ornithopus var *brachyptera.* A variety of the preceding, having the pinnae shorter. This also is a native of California.

P. ternifolia, Platyloma ternifolia, Pteris ternifolia. This grows from six to twelve inches long, of rather an arching habit, with the pinnae arranged trefoil shape, it makes a good basket plant, on account of its drooping habit. A green-house species, from Tropical America.

P. rotundifolia. See *Platyloma rotundifolia*.

P. sagittata. See *Platyloma sagittata*.

Phanerophlebia. See *Cyrtomium* and *Drynaria capitellata*.

PHEGOPTERIS.

Phegopteris Linnaeus. From *phegos*, the beech, and *pteris*, a fern, one of the species separated from *Polypodium*, which was called the beech fern. This genus comprises several very elegant and finely-divided species, and most of which are also known under the genus *Polypodium*, some of the species will do in a green-house temperature, and others require a stove, they are best grown in fibrous peat, and loam, and silver sand to make it open, and are propagated by spores, and divisions, and *effusa* forms plants on the ends of the principal pinnæ.

P. effusum, Polypodium effusum. The fronds of this are from two to four feet long, and several times divided into small segments; of an arching habit, and light green colour, the stipes have, when young, a few dark brown scales, and produces young plants on the ends of the fronds. A stove species, from Jamaica.

P. rugulosa. See *Hypolepis rugelosa*.

P. Sanctum, Polypodium sanctum. This produces fronds from six to twelve inches high, of a circular form around the crown, they are bi-pinnately divided into very small pinnules, which are densely covered with brown sori, and of a rich dark green on the upper side. A stove species, from Jamaica.

P. trichoides, Goniopteris trichoides, Polypodium trichoides, Polypodium tenericaule, Lastrea trichoides. A large-growing species, with the fronds two to four feet long, and bi-tripinnately divided into small light green segments, which are covered with minute

white hairs, and of an herbaceous texture, the stipes are scaly at the base, and of a yellowish colour, and easy growth. A green-house species, from the East Indies.

PHLEBODIUM.

Phlebodium, *R. Brown*. From *phlebs*, a vein, referring to the venation. This genus is separated from the genus *Polypodium*, on account of the reticulated veins, and numerous rows of sori, on the pinnæ they make grand plants, and most of the species have a beautiful glaucous colour, and large creeping rhizomes, densely clothed with chaffy scales, the species all grow well in peat, loam, and sand, and an abundance of water when growing, and easily propagated by divisions, and spores.

P. aureum, *Polypodium aureum*. A very strong-growing species, with fronds two to four feet long, and pinnatifid, in some instances nearly pinnate, it has a thick creeping rhizome, densely clothed with light chaffy scales, the sori very prominent, and of a yellow colour, the fronds are of a pleasing glaucous and bluish green colour. A stove fern, from the West Indies, and Tropical America.

P. glaucum. See *P. sporodocarpum*.

P. lycopodoides, *Polypodium glabellum*. A pretty dwarf-growing species, having simple fronds, wavy and slender at the base, and blunt at the apex. A stove species, from the West Indies.

P. nitidum. A pretty little dwarf growing plant, from six to nine inches long, and simple, of a bright shining green colour, and coriaceous texture. A stove species, from Honduras.

P. percussum, *Pleopeltis percussa*. This is another

simple-fronded species, about a foot long, of a lanceolate form, slightly scaly, on the under surface, and dark green on the upper, and of a fleshy texture, the sori large, and reddish brown. A stove species, from Brazil.

P. pulvinatum. This has pinnatifid fronds, from one to three feet long, of a light green colour above, the under surface conspicuously studded with very bright yellow sori. A stove species, from Brazil.

P. sporodocarpum, *P. glaucum*, *Polypodium glaucum*. The fronds of this are very glaucous, and deeply pinnatifid, from two to three feet long, the sori of a brownish yellow colour, a very desirable species, and a stove plant, from Mexico.

P. venosum. See *Pleopeltis stigmatica*.

Phorolobus. See *Polystichum*.

Phymatodes. See *Pleopeltis* and *Polypodium*.

Physomatium. See *Woodsia*.

Pinonia splendens. See *Gibotium Chamissoi*.

PLATYCERIUM

Platycerium Desvaux. From *platys*, broad, and *keras*, a horn, the form of the fronds. A genus of curious formed species, and of an epiphytal growth, growing as it does in its native haunts, on trees, and in our plant houses easily grown in baskets, on logs of wood, and pieces of board, *aleicorne* is an old inhabitant, being introduced soon after the commencement of the present century, while *Wallichii* and *Willinckii* are of recent introduction, they should be grown in fibrous peat, and sphagnum, the ones placed on the blocks, and boards, must not be let get dry, they are best propagated by divisions when obtainable, but I do not

know of a single instance, of any having been raised from spores.

P. Alcicorne, *Acrostichum alcicorne*. This has both sterile and fertile fronds, the former reniform, and sessile, of a light green colour, and permanent; the young ones overlapping the old, while the latter fronds are from twelve to eighteen inches long, rather drooping and forked, in a dichotomous manner, leathery in texture, and clothed with white stellate scales, the sori produced on the extremities of the lobes. A green-house species, from Java, North and South Wales.

P. alcicorne majus. A variety of the preceding, which is larger in all its parts.

P. biforme, *Acrostichum biforme*, *A. grande*, *A. fusiforme*, *Polypodium grande*. This has the appearance of being a narrow form of *stemma*, with the fronds longer, and has been introduced from the Indian Archipelago. A stove species.

P. grande. The barren fronds of this species are rounded on the lower edge, the upper part erect, and much divided, and from one to two feet in diameter, the fertile fronds, from one to three feet long, rising from the sinus of the barren fronds, drooping and of a coriaceous texture, and dichotomously forked several times, the sori placed in an irregular patch, near the first division of the fronds. A stove species, from the Malay Islands.

P. stemmaria, *Acrostichum stemmaria*. The barren fronds of this species grow from one to two feet high, and are divided on the upper part, sessile, and from one to two feet in diameter, and only live one season, when they get overlapped by the next season's growth, the fertile fronds from one to two feet long,

two or three times forked, and leathery texture, dark green on the upper side, and clothed beneath with whitish scales, the sori placed on the under side of the lobes. A stove species, from West Africa.

P. Walliehii. This appears to be a variety of *grande*, but both the barren and the fertile fronds are larger, and more forked. A stove species, from Borneo.

P. Willinekii. The sterile fronds are erect, from four to six inches broad, and lobed on the upper margin, the fertile fronds grow from a foot and half to two feet long, and hang straight down, and are produced in threes, quite narrow, and forked, and are not quite so coriaceous as the other species. A stove fern, from Java.

PLATYLOMA.

Platyloma, *J. Smith*. From *platy*, broad, and *loma*, a fringe, in reference to the sori being placed on the edge of the frond, so as to form a broad fringe. A genus having several species, all of which are worth growing, and most of them will do in a green-house fernery, some are well adapted for cases, while *flexuosum* is a plant of climbing habit, well suited for covering the pillars of a moderate warm fernery, they grow well in a mixture of peat, loam, and sand, and are propagated by spores, and divisions.

P. adiantioides. See *Cassabeera hastata*.

P. atropurpurea, *Pellaea atropurpurea*. The fronds are about a foot long, and bi-pinnate, the terminal pinnules much longer than the others, of a glaucous green colour; the stipes and rachis hairy. A North American species, but best grown in a green-house.

P. Brownii, *Adiantum paradoxicum*, *Allosorus*

paradoxicum, *Pellaea Brownii*. A strong-growing species, with fronds about eighteen inches long, and pinnate, the pinnæ broad, and somewhat cordate, of a leathery texture, and dark green colour; the sori forms a continuous band round the margin of the fertile fronds, which makes it very conspicuous. A green-house species, from Australia.

P. calomelanos, *Pteris calomelanos*, *Pellaea calomelanos*. This has bi-pinnate fronds, about a foot long, of rather a leathery texture, and of a bluish green colour, the pinnules triangular, and heart-shaped at the base, and has a creeping rhizome. A stove species, from the Cape of Good Hope.

P. cordata, *Pellaea cordata*. This has bi-pinnate fronds, from one to two feet long, with rather heart-shaped pinnæ, and running to a point, when fertile are somewhat hastate, glaucous below, and pale green above; the stipes and rachis straw coloured. A deciduous green-house species, from Mexico.

P. falcatum, *Pellaea falcatum*, *Pteris falcatum*, *Pteris seticaulis*. The fronds of this grow about two feet long, and pinnate, the pinnæ heartshaped at the base, and sickle shaped towards the points, of a leathery texture, and dull green colour. A green-house species, from New Holland.

P. flexuosum, *Pellaea flexuosum*. A very pretty climbing or scandent species, the fronds three to six feet long, and tri-pinnate, the pinnæ alternate, the rachis of a zigzag growth, and has small ovate pinnules, of a light green colour. A warm green-house species, from South America.

P. hastata. See *Cassabeera hastata*.

P. mucronata. See *Pellaea mucronata*.

P. rotundifolia, *Pellaea rotundifolia*, *Pteris rotundi-*

folia. This generally has fronds, about a foot long, and pinnate, the pinnules nearly round, of a very dark green colour, and rather drooping habit, the stipes and rachis clothed, with brownish scales. A green-house species, from New Zealand.

P. rotundifolia var *cordifolia*. This is a variety of the preceding, with the pinnules heart-shaped at the base. This also requires a green-house temperature.

P. sagittata. This grows erect, and about two feet high, of a triangular form, and bi-pinnate, the pinnules arrow-shaped, and nearly sessile, of a light green colour. A green-house species, from South America.

PLEOCNEMIA.

Pleocnemia Presl, from *pleos*, full, and *nemosa*, grove, probably from its place of growth. This genus has only one species, and, by some authors, it is placed among the *Polypodiums*, it is a bold-growing plant, with very broad fronds, of a crisped appearance, it is best grown in peat, loam, and sand, and propagated by divisions, when obtainable, and also from spores.

P. Leuzeana, *Aspidium Leuzeana*, *Polypodium Leuzeana*. A very handsome species, of rather an arborescent habit, the fronds are nearly as broad as long, and triangular, and tripinnate in the basal pinnae, the pinnules appear deflexed, through being set on below the surface of the rachides, which thus appear raised, the pinnules are cut into rather oblong toothed lobes, the sinuses reflexed, thus giving it a crisped appearance on the surface, the stipes are clothed with short hairs. A stove species, from the Philippine Islands.

PLEOPELTIS.

Pleopeltis, *Humboldt* and *Boupland*. From *pleos*, full, and *pelte*, a shield, alluding to the form of the indusium. This genus is separated from *Polypodium* on account of the compound union of the veins, the generality of the species make nice basket plants; the creeping rhizomes should not be buried, but pegged to the surface, they grow well in fibrous peat, with plenty of water, when growing, and are readily propagated by pieces of the rhizomes.

P. albo-punctatissima, *Pleuridium albo-punctatissima*. An erect-growing species, with simple fronds of a leathery texture, from one to two feet long, and about two inches broad, of a dark green colour, and dotted all over the upper surface, with small white spots. A stove species, from Tropical America.

P. angustata, *Niphopsis angustatus*, *Niphobulus macrocarpus*, *Niphobulus sphærocephalus*. *Polypodium angustatum*. This has pendulous fronds, from one to three feet long, and pinnate; the pinnae six or seven inches long, with the upper ones sessile, of a very vivid green, and very conspicuous sori of a reddish brown colour. A stove species, from Java.

P. Billardierii, *Phymatodes Billardierii*, *Polypodium Billardierii*, *P. diversifolium*, *P. lepidopodium*, *P. scandens*. The fronds of this in some cases are simple, and others pinnatifid; from six to fifteen inches long; of a dark green colour, and erect habit, the large sori of a yellowish brown colour, and deeply imbedded in the fronds, and producing umbones on the upper surface. A green-house species, from the Antipodes.

P. crassifolia, *Polypodium crassifolium*. This has simple fronds from one to three feet high; and one to three inches wide, of erect habit, and dark green

colour; and has large blackish brown sori. A stove species, from Tropical America.

P. crassinerviun. See *Pleuridium crassinerviun.*

P. incurvata. This has sterile and fertile fronds, the former twelve or fifteen inches long, broadly trilobed, rather drooping, and dark green in colour, the fertile ones are erect, and longer, contracted, and pinnatifid, usually with two pair of pinnæ, and the ultimate one, the sori large and imbedded in the fronds. A stove fern, from Java.

P. juglandifolium. See *Drynaria capitellata.*

P. longipes, Phymatodes longipes. A rather strong-growing species, with the fronds about two feet long, and erect, and of a vivid green colour, the large sori immersed so deep in the fronds, to form umbones on the upper surface. A stove fern, from the East Indies.

P. membranacea. See *Polypodium membranaceum.*

P. nigrescens, Polypodium nigrescens, Phymatodes nigrescens, Phymatodes saccata. This has pendulous fronds, upwards of two feet long and pinnatifid, the pinnæ eight or nine inches long, and about one and a half inches broad, of a very dark green colour, the umbones in this species are very prominent. A stove species, from Java.

P. peltidea, Phymatodes peltidea. This has fronds about eighteen inches long, and pinnatifid, of a dark shining green colour, the stipes of a reddish brown, the sori depressed, so as to raise umbones on the upper surface. A stove species, from the East Indies.

P. percussa. See *Phlebodium percussum.*

P. pustulata, Phymatodes pustulata. The fronds of this species are variable, some are simple, and again others are pinnatifid, it grows from nine to twelve inches long, and of a light green colour, of thinnish

texturo, and large round sori, of a reddish brown. A green-house species, from New Zealand.

P. squamulosa. See *Anapeltis squamulosa*.

P. stigmatiea, *Polypodium stigmaticum*, *Polypodium venosum*, *Phlebodium venosum*, *Anapeltis venosum*. This has simple fronds, both fertile and sterile, the former are three or four inches long, and narrower than the sterile ones, and rather longer, the sterile ones are of an oblong lanceolate form, of a light green colour, and reticulated with very dark veins, and has a creeping rhizome, of a very dark colour. A stove species, from Tropical America.

P. venusta. See *Pleuridium venustum*.

PLEURIDIUM.

Pleuridium *J. Smith*. From *pleura*, side. This is closely allied to the preceding genus, the species here mentioned are strong-growing, with simple fronds, *crassinervia* has the upper side of the fronds profusely spotted with little white spots, the same culture and propagation as *Pleopeltis*.

P. albo-punctatissima. See *Pleopeltis albo-punctatissima*.

P. angustatum. See *Pleopeltis angustata*.

P. crassifolia. See *Pleopeltis crassifolia*.

P. crassinervium, *Pleopeltis crassinervium*, *Polypodium crassinervium*. This has simple fronds from one to two feet long, of an ovate acuminate form, and about four inches wide in the broadest part, dark green in colour, and profusely dotted on the upper surface with white spots, it has a stout creeping rhizome, densely clothed with long stiff brown hairs. A stove species, from Java.

P. juglandifolium. See *Drynaria capitellata*.

P. venustum, *Polypodium venustum*, *Pleopeltis venustum*. This has pinnate fronds, from one to two feet long, the pinnae six inches or more in length, it is of a pendulous habit, and dark green colour, and has large brown sori. A stove species, from the East Indies.

POLYBOTRYA.

Polybotrya Humbolt. From *poly*, many, and *botrys*, a raceme, referring to the fertile fronds. A genus with stout rhizomes, of a scandent habit, growing well on the trunks of dead ferns, and wire pillars filled with peat, and with plenty of heat, and moisture soon make fine plants, they have dark green sterile fronds and contracted fertile ones, it is best grown in fibrous peat, and propagated by dividing the plants.

P. aurita. See *Stenosemia aurita*.

P. caudata. This has the sterile fronds tripinnately divided, and lengthened out into a tail-like point, as well as the pinnae, the pinnules are broad, oblong, and rounded at the base, and tapering to a point and toothed at the edges, the fertile fronds are contracted, the pinnules being linear, about two inches long, and slightly cared at the base, and wholly sporangiferous of a light shining green colour. A stove fern, from South America, and the West Indies.

P. corcovadense. See *Olfersia cervina*.

P. cylindrica. The barren fronds of this species grow from two to three feet high, the fertile ones bipinnate, contracted, and round, and every pinnae of the fertile fronds spore bearing. In its native haunts it grows twenty to thirty feet high, it has a bright shining green colour and a creeping rhizome. A stove species, from Jamaica.

P. Lowii, *Lindsæ Lowii*, *Arthropteris obliterated*.

This, in a cultivated state, has assumed three different forms, but I have never seen or heard of its producing fertile fronds, in the first form, the pinnæ are only developed on one side of the rachis, obtusely lobed and decurrent, they are next produced on both sides, the third form is pinnate, the pinnæ entire, rather rounded at the base, and acuminate at the apex, and reminds one of a *Nephrolepis*, the fronds are of a dark green colour. A stove species, from Borneo.

P. osmundaceæ. The barren fronds of this species grow about three feet long, and bi-tripinnate, the pinnules oblong and broad, the fertile one are contracted into linear segments, which are wholly covered with dark brown sori, it has a stout creeping rhizome, and as well as the stipes, are clothed with long brown chaffy scales. A stove species, from South America.

Polycampium. See *Niphobulus*.

POLYPODIUM.

Polypodium. Swartz. From *poly*, many, and *pous*, a foot, referring to the feet-like rhizomes. A large genus, and known better by modern botanists, by their free veins, as all the others, that were formerly included in this genus, has been separated, principally through the venation not being free; thus making it better to understand. There are some of the species with creeping rhizomes, and others erect, the sori is generally placed in single rows, on the end of a short vein, the fronds are in most of the species, of a thick texture, all are easily grown in fibrous peat, and a little sand, and propagated by divisions and spores.

P. aculeatum. See *Alsophila ferox*.

P. affine. This grows from twelve to eighteen

inches long, pinnate, and with rather long stipes, for the size of the fronds, it has generally about four pair of pinnae, and the terminal one, the pinnae serrated, from two to three inches long, and of a lanceolate form. A green-house species.

P. albo-punctatum. See *Goniophlebium albo-punctatum*.

P. albo punctatissima. See *Pleopeltis albo punctatissima*.

P. angustatum. See *Pleopeltis angustatum*.

P. angustifolium. See *Pleopeltis angustifolium*.

P. anomalum. See *Polystichum anomalum*.

P. appendiculatum. See *Goniophlebium appendiculatum*.

P. asplenioides. See *Goniopteris asplenioides*.

P. aureum. See *Phlebodium aureum*.

P. axillaris. See *Asplenium acillare*.

P. bicolor. See *Niphobolus bicolor*.

P. Billardierii. See *Pleopeltis Billardierii*.

P. bulbiferum. See *Cystopteris bulbifera*.

P. capensis. See *Polystichum capensis* and *Alsophila capensis*.

P. capitellata. See *Drynaria capitellata*.

P. compositum. See *Goniopteris reptans*.

P. crassifolium. See *Pleopeltis crassifolium*.

P. crassinervum. See *Plenridium crassinervum*.

P. crenata. See *Goniopteris crenata*.

P. Dianæ. A strong-growing species, with fronds from three to five feet high, the lower part pinnate, and the upper part only pinnatifid, of a triangular ovate form, the pinnules oblong lanceolate; the stipes are clothed with brownish scales, and has a thick creeping rhizome. A stove species, from St. Helena.

P. divergens, P. multifidum. This grows two feet

or more in length, with broad decompose, and finely-divided fronds of a light green colour, and arching habit. A stove species, from the West Indies.

P. diversifolium. See *Drynaria diversifolia*, and *Pleopeltis Billardieri*.

P. drepanum. This has bi-pinnate fronds, from one to two feet long, of a dark green colour, the pinnules serrated, and with rather large dark brown colour sori; the stipes are clothed with large dark coloured chaffy scales. A green-house species, from Madeira.

P. effusum. See *Phegopteris effusa*.

P. evectum. See *Angiopteris evecta*.

P. filipes, *P. tenellum*, *Arthropteris filipes*, *A. tenellum*. A dwarf-growing plant with climbing rhizome, having pinnate fronds, about three to nine inches long, the pinnæ entire, and of an oblong acuminate form, and dark green colour, it makes a nice covering for a tree fern, or a wire pillar, filled with peat. A green-house species, from New Zealand.

P. fragrans. See *Cheilanthes fragrans*.

P. Ghiesbreghtii. See *Goniopteris Ghiesbreghtii*.

P. glabellum. See *Phlebodium lycopodioides*.

P. glaucum. See *Phlebodium Sporodocarpum*.

P. gracile. See *Goniopteris gracilis*.

P. grande. See *Platycerium biforme*.

P. griseum. See *Alsophila pruinatum*.

P. hastæfolium. A dwarf-growing species, with pinnate fronds, from four to eight inches long, the pinnæ about an inch long, of a linear form, and auriculate at the base, on both margins, and of a dark shining green colour. A stove species, from Jamaica.

P. Henchmanii. A very rare species, growing

from one to two feet high, with the fronds pinnate, the pinnae of a linear lanceolate form, glabrous, and of a glaucous green colour. A stove plant, and a Native of Mexico.

P. heracleum. See *Drynaria morbillosa*.

P. hexagonopterum, *Phegopteris hexagonoptera*. A very pretty and hardy species, from twelve to fifteen inches high, and triangular in form, bi-pinnate, and thin in texture, the stipes and rachis straw coloured; and contrasting well with the dark green pinnae, it is deciduous, and a Native of North America.

P. hirsutissima. See *Lepicystis Sepultum*.

P. irioides. See *Microsorium irioides*.

P. juglandifolium. See *Drynaria capitellata*.

P. Kramerii. This grows about a foot high, and has creeping rhizomes, clothed with pale coloured scales, the fronds are of a pale green colour, and bi-pinnatifidly divided, and glabrous, it rather resembles our British species *phegopteris*, and, like that species, deciduous. A hardy species, from Japan.

P. lachnopodium. This has an upright caudex, with fronds two to four feet long, and bi-tripinnatifidly divided into lanceolate pinnules, nine to twelve inches long, of a soft delicate texture, the stipes and rachis are densely clothed with a hairy-like pubescence. A stove fern, from Jamaica.

P. lepidopodium. See *Pleopeltis Billardierii*.

P. Lenzeana. See *Pleocnemia Lenzeana*.

P. lineare. See *Niphobulus lineare*.

P. lingua. See *Niphobulus lingua*.

P. longifolium. See *Goniophlebium menisciifolium*.

P. lusitanicum. See *Davallia canariensis*.

P. macropterum. A large and handsome growing

species, from one to three feet in height, and pinnate, the pinnæ seven or eight inches long, and deeply pinnatifid, the pinnules obtuse and slightly curved, of a deep green colour. A stove species, from Brazil.

P. membranaceum. *Pleopeltis membranacea*, *Drynaria hemionitis*, *Hemionitis plantaginea*. The fronds of this grow from twelve to eighteen inches long, simple, and of a broad lanceolate form, and the margin undulated, of a thin texture, and growing on a creeping scaly rhizome, the small yellow sori placed on the back of the fronds, in an irregular manner. A stove deciduous fern, from the East Indies.

P. microsorum. See *Drynaria musæfolia*.

P. multifidum. See *P. divergens*.

P. musæfolia. See *Drynaria musæfolia*.

P. nigrescens. See *Pleopeltis nigrescens*.

P. paradisæ. This grows to the height of two or three feet, and pinnatifid, with very short stipes, the pinnæ two to four inches long, the fronds erect, but slightly arching near the top, of a dark green colour, and slightly pubescent, the sori are of a very bright golden yellow, which gives the plant a charming appearance. A stove species, from Brazil.

P. pectinatum. This grows about eighteen inches long, deeply pinnatifid, the pinnæ long and narrow, of a stiff habit, pubescent and dark green colour, the stipes and rachis shining black. A stove species, from Tropical America.

P. pertusus. See *Niphobulus pertusus*.

P. phymatodes, *Drynaria vulgaris*, *Phymatodes vulgaris*, *Pleopeltis phymatodes*. This has pinnatifid fronds, from twelve to eighteen inches long, with the segments almost triangular, of a dark green colour,

the fronds when fertile, are narrower, in the segments, and nearly pinnate. The rhizome black, of a creeping habit, and clothed with scales. A stove species, from the Malay Islands, and other places.

P. phymatodes cristata, *Drynaria vulgaris cristata*, *Phymatodes vulgaris cristata*, *Pleopeltis phymatodes cristata*. This differs from the normal form, by having the apices of the divisions, terminating in a crested form. A stove fern, of Garden origin.

P. plesiorum. See *Goniophlebium appendiculata*.

P. plumosum, *P. plumula*, *P. Schkuhrhrii*. A pretty little plant growing about a foot high, the fronds of a lanceolate form, and deeply pinnatifid, the pinnæ linear, and of a delicate green colour. A stove species, from the West Indies, and Brazil.

P. polycephalum. See *Microsorium irregulare*.

P. proliferum. See *Goniopteris vivipara*.

P. quercifolium. See *Drynaria quercifolia*.

P. refractum. See *Goniopteris refractum*.

P. Reinwardtii. See *Goniophlebium subauriculatum*.

P. reptans. See *Goniopteris reptans*.

P. rigidulum. See *Drynaria diversifolium*.

P. rufulum. See *Lepicystis sepultum*.

P. rugulosa. See *Hypolepis rugulosa*.

P. rupestris. See *Niphobulus rupestris*.

P. sanctum. See *Phlegopteris sanctum*.

P. scandens. See *Pleopeltis Billardierii*.

P. Schkuhrhrii. See *Polypodium plumosum*.

P. Scoulerii. A very distinct species, from nine to fifteen inches long, very coriaceous in texture, and pinnate, of a dark glossy green colour, the rhizome creeping, and about one inch in circumference, and of a very white colour. A green-house species, from California.

P. scriptum. See *Goniophlebium appendiculatum*.

P. sepultum. See *Lepicystis sepultum*.

P. serpens. See *Niphobulus rupestris*.

P. serrulatum. See *Goniopteris serrulata*.

P. spectabile. This has fronds two to three feet high, and bi-pinnate, the pinnæ deeply lobed, rather hirsute, and of a very deep green colour, a fine-growing stove species, but is seldom seen in many collections. A Native of Tropical America.

P. squamata. See *Goniophlebium squamata*.

P. subauriculatum. See *Goniophlebium subauriculatum*.

P. subpetiolatum. *Goniophlebium subpetiolatum*. The fronds of this are pinnate, from two to three feet high, and of a lanceolate form, the pinnæ nearly sessile, and also lanceolate, and has a creeping rhizome, clothed with scales. A green-house species, from Mexico.

P. tenellum. See *P. fillipes*,

P. tenericaule. See *Phegopteris trichoides*.

P. tetragonium. See *Goniopteris tetragona*.

P. trichoides. See *Phegopteris trichoides*.

P. umbrosum. See *Asplenium umbrosum*.

P. unidentatum. A handsome species, having decompound fronds, from one to two feet high, of a beautiful rich green colour. A stove species, from the Sandwich Islands.

P. vacciniifolium. This is a small-growing species, and clothed with scales, the fertile fronds are linear, and simple, about two inches long, and smooth, the barren ones nearly round, and half an inch to an inch long, and dark green colour, it has a creeping rhizome about the size of a moderate size cord. A green-house species, from Brazil.

P. v. albidum. A variety of the preceding, with the fronds of a metallic white, and remains that colour throughout all its growth, while its appearance is both striking and pleasing; also a native of Brazil.

P. varium. See *Lastrea varia*.

P. venosum. See *Pleropeltis stigmatica*.

P. venustum. See *Pleuridium venustum*.

P. verrucosum. See *Goniophlebium verrucosum*.

P. Walkerii. A strong-growing species, about two feet in height, and pinnate, the pinnæ six or seven inches long, and about one broad, toothed on the margins, and bright dark green colour, with the sori large and very conspicuous. A stove fern, from Ceylon.

P. Wallichianum. See *Drynaria capitelata*.

POLYSTICHUM.

Polystichum. *Roth.* From *poly*, many, and *stichos*, row, referring to the numerous rows of sori. This genus somewhat resembles some of the *Polypodium* species, but, a great distinction is, that this has a proper covering, while that genus has not. There are three species, native of our island, and one of the species, *angulare*, has several varieties, and is viviparous, there are a few of the exotic species, also viviparous, and some of them hardy, nearly all the species make fine specimens, and grow well in loam, peat, and sand, and propagated by dividing the plants and spores; the viviparous species, by the young plants formed on the fronds.

P. acrostichoides. This grows from one to two feet high, and pinnate, the pinnæ eared on the upper margin, and armed with bristly hairs, the upper part

contracted, when fertile, and of a heavy green colour, and hardy. Native of North America.

P. acrostichoides incisum. This differs from the normal state, in the pinnæ being more deeply eared, and is also a Native of North America.

P. amplissimum. This is a fine species, having finely-divided fronds, two feet or more in length, and of a dark green colour, the stipes as well as the rachis, of a straw colour, and slightly hairy. A stove species, from Brazil.

P. anomalum, *Polypodium anomalum*. This has bi-pinnate fronds, from twelve to eighteen inches long, of a broad ovate lanceolate form, dark green in colour, and coriaceous texture, the pinnæ lanceolate-acuminate, the pinnules serrated, and has the peculiarity of nearly always producing the sori on the upper surface of the fronds; the stipes and rachis are clothed with bright brown chaffy scales, of a deciduous nature. A stove species, from Ceylon.

P. aristatum variegatum, *Lastrea aristata variegata*. A very pretty species with fronds, one to two feet long, of a graceful habit, and bi-pinnate, the pinnules sessile, and has a broad band of pale green, running through the bases of the pinnules, along the course of the rachis, and in this way rather resembles *Pteris argyrea*. A green-house species, from Japan.

P. capensis, *P. coriaceum*, *Tectaria coriaceum*, *Polypodium capensis*. This has fronds two to three feet high, and tri-pinnately divided into blunt segments, which are toothed, of an arching habit, and very thick texture, the colour a very dark green, and has a stout creeping rhizome, clothed with dark chaffy scales. A green-house species, from South Africa.

P. concavum, *Lastrea Standishii*. This grows

about two feet high, and bi-pinnate, the pinnae and pinnules closely set, and of a dark green colour, and spreading habit, this is hardy in some parts, but deserves a place in the green-house. Native of Japan.

P. coniifolium. A very pretty species, but seldom seen; it grows from one to two feet high, with the fronds deltoid in form, and several times divided into segments, of a bright green colour, and thickly covered on the under side with the large sori; the stipes and rachis, densely hairy. A stove species, from Ceylon, and East Indies.

P. coriaceum. See *P. capensis*.

P. denticulatum. A rather dwarf and handsome growing species, with fronds six to twelve inches high and very finely divided, of a triangular form, and clothed at the base with black chaffy scales. A green-house species, from Jamaica.

P. faleinellum. This has pinnate fronds, from twelve to eighteen inches long, the pinnae eared on the upper margin; of a bright green colour on the upper side, and paler below; the sori large and reddish-brown, the stipes and crown of the plant clothed with large brown chaffy scales. A green-house species, from Madeira.

P. hispidum. See *Lastrea hispida*.

P. lepidocaulon. This grows from six to twelve inches long, and pinnate, and auriculate on the upper margin, and very dark green colour; the upper part of the frond naked, and proliferous at the apex; the stipes clothed with light brown chaffy scales. A green-house species, from Japan.

P. mucronatum. This has fronds from one to two feet long or more and pinnate, of a lanceolate form,

and about three inches wide in its broadest part, the pinnæ are auriculate on the upper margin, and toothed on both edges, the underside clothed with hairs, and armed with a short spine on the end, the stipes are densely clothed with long brown-looking hairs. A stove fern, from Jamaica.

P. munitum. This has pinnate fronds, growing about two feet high, with rather large pinnæ, of a very deep green colour, and closely set on the rachis, and partly overlapping each other; strictly speaking this is a large-growing form of the holly fern. A hardy fern, from California.

P. ordiutum. A rather strong-growing species, having the fronds bi-pinnately divided, and usually seen from one to two feet long, though in some cases they grow twice as long, the pinnules obtuse and of a dark green colour, and forms an erect caudex, the stipes and rachis densely clothed, with dark brown chaffy scales. A green-house species, from Chili.

P. proliferum. This also has bi-pinnate fronds, from one to two feet long, of rather a lanceolate form, the pinnules of a thick texture and toothed at the edges, and of a heavy dark green colour, it produces young plants at the apex of the fronds on the underside; the stipes are densely clothed with large black chaffy scales, this is hardy in most situations. Native of Tasmania.

P. setosum. This has fronds from one to two feet long, and bi-pinnately divided into pinnules, of a dark green colour, and round at the base, tapering to a point at the apex, the stipes are densely clothed with reddish brown chaffy scales, the underside of the frond hairy; and of an arching habit, and broad lanceolate form. A hardy species, from Japan.

P. stenophylla. This grows from one to two feet high, bi-pinnately cut into ovate pinnules, and of a lanceolate form, the stipes and rachis, slightly clothed with brown chaffy scales.

P. triangulum. This grows from nine to fifteen inches high, and pinnate, the pinnæ triangular, and somewhat auriculate on the upper margin, the segments spiny, and of a light green colour, the stipes clothed with brownish scales, the rachis hairy the whole length. A green-house species, from the West Indies.

P. triangulum var. *laxum*. An elegant form of the preceding, the pinnæ divided, into several small segments, and each surmounted by a long white spine, the stipes clothed with larger scales, and more hairy than the preceding. This also is a native of the West Indies.

P. tripterum. A green-house species, with fronds, of a bright green colour, and pinnate, of a narrow outline, and the pinnæ at the base much enlarged. Native of Japan.

P. venustum. An elegant and erect-growing species, with fronds about twelve inches long, and bi-pinnate, of a dark green colour, the pinnules toothed and prickly on the margins; the stipes and crown of the plants are densely clothed with black chaffy scales, margined with brown. A green-house species, from New Zealand.

P. vestitum. This has bi-pinnate fronds, nine to fifteen inches long, of a lanceolate form, and rich deep green colour, the stipes and rachis clothed with scales. A green-house species, from New Zealand.

P. viviparum. This has pinnate fronds about a foot long, of a lanceolate form, and the pinnæ beset

with stiff bristles. A green-house species, from the West Indies.

Polytænium. See *Antrophyum*.

Psomiocarpa. See *Polybotrya*.

PTERIS.

Pteris, *Linneaus*. Named from *pteryx*, a wing, in allusion to the form of some of the fronds. An extensive, and very handsome genus of ferns, and widely distributed, one species only being a native of our island, some of the species have several varieties, which are both handsome and quaint, *tricolor* is a rich variegated form but seldom seen to perfection, there are several variegated varieties and all are worthy of culture. There were several other genus formerly included in this, but have been separated by modern authors, the following are among the number which have been separated, *Allosorus*, *Cassabeera*, *Doryopteris*, *Litobrochia*, *Platyloma*, and several others, the principal character of this genus is the sori, placed in continuous lines along the margin of the pinnæ, and the veins free; *scaberula* is a very finely-divided species, and will grow out of doors in a sheltered situation; some of the species make grand specimens, if planted in the rock work, while some are nice plants for the Wardian cases, and many will come up spontaneously in different parts of the fernery. Several make good plants for cutting from, the species all grow well in sandy loam, and peat, and are easily propagated by dividing the plants, and also by spores.

P. adiantoides. See *Cassabeera hastata*.

P. angustifolium, *Tœnitis angustifolium*. A species having simple fronds, of a very narrow linear form, six or eight inches long, and not exceeding a

quarter of an inch wide, of a light green colour. A stove fern, from Jamaica.

P. argentea. See *Cheilanthes argentea*.

P. arguta. A strong-growing species, three feet or more in length, the lower half naked, the upper part pinnate and the lower pair bi-partite, the pinnae pinnatifid, the segments again slightly serrated, and of a dark green colour. A green-house species, from Madeira.

P. a. acuminatissima. The fronds of this variety are about a foot long, and bi-pinnate, the pinnules rather distant, and about an inch long, and of an oblong falcate form, tapering to a very sharp point, the apices of the pinnae impoverished so to form a tail-like apex. This is a variety from the Azores.

P. a. majuscula. A stronger variety than the preceding, and the pinnules longer, but like that variety terminating in tail-like points, and also imported from the Azores.

P. a. polydactyla. This is a variety, with the apices of the pinnae, three or more times divided into slender tapering divaricate lobes, of a very ornamental character, and spreading habit, and like the preceding, from the Azores.

P. a. rotundata. This variety grows about two feet high, and bi-pinnate, the pinnae in the lower half of the frond with one or two large pinnules developed on the lower side, while the other parts are depauperated into roundish lobes, and bearing sori around the edges, and like the preceding forms, imported from the Azores.

P. argyræa. *P. longipinnula.* The fronds of this species are from one to three feet high, and pinnate, the pinnae pinnatifid, the lower pair bipartite,

the middle of the pinnæ silvery white, and margined with a light green, the stipes and crown clothed with a rusty pubescence, this will grow in a green-house temperature, but does best in a stove. Native of the East Indies.

P. aspericaulus. This grows from twelve to eighteen inches long, and pinnate, the pinnæ deeply pinnatifid, the lower pair bi-partite, the stipes rather reddish, and rough, the rachis also of the same colour, and has an erect caudex. A stove species, from the East Indies.

P. aurita. See *Litobrochia aurita*.

P. biaurita. *Camptera biaurita.* This grows from one to two feet high, of an arching habit, and light green colour, the fronds are bi-pinnate, and the pinnæ sessile, rather obtuse, and rounding at the top, the stipes and rachis of a light brown colour. A green-house species, from the West Indies.

P. Bovinii. A pretty dwarf-growing species, having bi-pinnate fronds, six to twelve inches long, the sterile pinnæ ovate, and erenated all round the margin, while the fertile are more hastate, of a dark green colour above, and paler beneath, the stipes and rachis black, and clothed with short hairs, of the same colour. A stove species, from South Africa, Ceylon, and other places.

P. calomelanos. See *Platyloma calomelanos*.

P. ehinensis. See *P. crenata*.

P. collina. See *Doryopteris collina*.

P. costata. See *P. longifolia*.

P. erenata, P. chinensis. This grows from twelve to eighteen inches high, and bi-pinnate, the pinnæ when fertile of a linear form, and decurrent, the sterile ones more ovate, and erenate at the margin, of a dark

green colour. A green-house species, from China, and other places.

P. cretica, *P. pentaphylla*. *P. serraria*. This grows from twelve to fifteen inches long, with sterile and fertile fronds, the fronds are pinnate, the lower pair of pinnæ again divided, the pinnæ of the sterile ones lanceolate, the fertile ones narrower and more erect. A green-house species, from the Tropics.

P. cretica albo lineata. A variety of the preceding, with a broad band of creamy white in the centre of each pinnæ; this has proved hardy in some parts of Ireland, and the West of England. Native of Japan.

P. cretica albo lineata cristata. A tasseled variety, of the preceding form, the pinnæ terminating in a crested form, of Garden origin.

P. cretica dactylifera. This grows about two feet high, with the pinnæ six to nine inches long, and each point bearing a drooping tassel, of light green colour. Of Garden origin.

P. crispa. See *P. straminea*.

P. dimidiata. See *P. semipinnata*.

P. ensifolia. See *P. longifolia*.

P. esculenta. A strong-growing species, three or four feet high, having the fronds several times divided, into narrow segments, of a deep green colour, and has an underground creeping rhizome, which is eaten by the aborigines, hence the specific name. A green-house species, from New Zealand.

P. falcatum. See *Platyloma falcatum*.

P. fallax. See *Cassabeera intramarginalis*.

P. farinose. See *Cheilanthes farinosa*.

P. flabellata. See *P. semipinnata*.

P. geraniifolia, *Doryopteris geraniifolia*. A pretty species, growing about nine inches high, of a palmate

form, and divided into several segments, of a very dark green colour, the sori reddish brown, the stipes black, and shining. A stove species, from the East Indies, and South America.

P. hastata. See *Cassabeera hastata*.

P. hastata macrophylla. See *Cassabeera hastata macrophylla*.

P. heterophylla, Adiantum hexagonium, Ruta muraria major. A compact-growing species, with fronds nine or ten inches high, and bi-pinnate, of rather a triangular form, the pinnae obtusely lobed, the pinnae of the fertile ones are bluntly oblong, while the sterile ones are ovate, which gives the plants the appearance of various kinds of pinnae, hence the specific name. A stove fern, from Jamaica.

P. hirsuta. A strong-growing species three or four feet high, and bi-pinnately divided, of a bright green colour, and triangular form, the rachides on the back winged, and hairy in every part. A stove species, also from Jamaica.

P. incisa. See *Litobrochia vespertilionis*.

P. internata. This is a new form of fern, with dissimilar fronds, and not like is generally found, in the genns, barren, and fertile, but both are soriferous, the tallest fronds are from twelve to fifteen inches high, and bi-pinnately cut into narrow lobes, linear and decurrent, while, the shorter fronds are tri-pinnate and half the height of the other, the segments blunt, and oblong. A stove species, casually introduced from the West Indies.

P. intramarginalis. See *Cassabeera intramarginalis*.

P. Kingiana. This grows about two feet high, and sub-bipinnate, and of rather a spreading habit, the

pinnæ long lanceolate and serrated at the edges, and drooping, of a pale green colour. A green-house species, and, I think, only found in Norfolk Island.

P. lata. A very pretty fern, growing about two feet high, of a triangular form, and tripartitely branched, these parts again pinnate, the pinnæ deeply cut, and of a narrow lanceolate form, and drooping habit. A stove species, from Brazil.

P. leptophylla. See *Litobrochia leptophylla*.

P. longifolia, *P. costata*, *P. ensifolia*, *P. vitatta*. A very graceful looking plant, with fronds from one to two feet long, and pinnate, the pinnæ narrow, of a lanceolate form, two to four inches long, the terminal one twice the length of the others, of a dark green colour, and erect growth, the sori mixed with a few hairs. A green house species, from the Tropics.

P. longipinnula. See *P. argyrea*.

P. moluccana. A tall-growing species of erect habit, and having the pinnæ arranged in opposite pairs, and of a bright shining green colour. A stove species, from the Malays.

P. mutilata. This grows from one to two feet high, of dense habit, and bi-pinnately divided, and of an arching habit, the pinnules towards the top of the fronds decurrent, of a light green colour and compact growth. A native of Jamaica, but from such an elevation, it will do well in a green-house temperature.

P. nemoralis. *Campteria nemoralis*. This grows from one to three feet high, with bi-pinnate fronds, of a bright green colour, the pinnæ broad and deeply lobed, similar to *argyrea*, but not variegated. A green-house species, from the Isle of Bourbon.

P. nemoralis variegata. A dwarf-growing variety, from twelve to eighteen inches high, the centre of the

pinnae white, and suffused with rose, this also is introduced from the Isle of Bourbon.

P. pedata. See *Cassabeera pedata*.

P. pentaphylla. See *P. cretica*.

P. quadrianrita. This grows from one to three feet high and has the peculiarity of each of the pinnae lengthening into long tails, giving it a pleasing appearance, and assumes several forms in its growth. A green-house species, from the East Indies.

P. rubricaulis. A bi-partite species, with the pinnae of a falcate form, the stipes and rachis of a red colour, and grows from twelve to eighteen inches high, and somewhat resembles *aspericaulis*. A stove species, from the East Indies.

P. scaberula. A very pretty and finely-divided species, from nine to fifteen inches high and about five inches wide, lanceolate in form, and a very bright cheerful green colour, and stiff habit, and creeping rhizome. A green-house species, native of New Zealand.

P. semipinnata, *P. dimidiata*, *P. flabellata.* A very distinct species, of erect growth, the fronds from one to two feet long, and pinnate, the lower side of the pinnae semi-pinnate, the upper side has very much the appearance of being cut off, and of a dark green colour. A stove species, from the East Indies.

P. serrulata. This is one of the commonest ferns of our ferneries, but none the less desirable, it has pinnate fronds, of a pendulous habit, the pinnae linear, with the lower pair again pinnate; serrated at the edges, and of a light green colour. A green-house species, from China and Japan.

P. s. angustata. The pinnae of this variety are much narrower than the species, and crested at each

point, and of a graceful arching habit. Of garden origin.

P. s. Applebyana. The pinnæ of this variety are long and narrow, beautifully pendant, and furnished with a much-divided and fringed tassel at the points. A Garden variety, of great beauty.

P. s. corymbifera. This grows from nine to twelve inches high, and erect, and forming dense heads of corymbs of a bright green colour, and very compact. Also of Garden origin.

P. s. cristata. This is also of erect habit, with the pinnæ broader than the species, the apex of all the pinnæ beautifully crested. Of Garden origin.

P. s. cristata bella. A variety with broad-crested or tasselled points, and of a semi-transparent texture. Of Garden origin.

P. s. cristata semifastigata. This is one of the prettiest of all the varieties, it is of compact growth, and dense habit, and forms an immensely large and broad-crested corymb at the apex, the lower part of the frond developed, as in the normal form. Of Garden origin.

P. s. Dixonii. A rather dwarf-growing variety, with the apices terminating in very broad crests or tassels, and very compact in habit. Of Garden origin.

P. s. fimbriata. This variety has narrow pinnæ, terminating into broad fringed tassels, one of the best varieties. Of Garden origin.

P. s. Leyii. A curious form distinct from all the other varieties, it grows from six to twelve inches long, and erect, the apices of the pinnæ terminating in thread-like tails. Of Garden origin.

P. s. magnifica. An erect and giant form of *P. serrulata*, it grows in large plants, five or six feet

high, the apex of the pinnæ slightly crested, and dark green colour. A stove fern, of Garden origin.

P. s. major. This is one of the best varieties of the species, differing principally from the normal form, in the length and size of the fronds, which, in some instances, are two to three feet long, and beautifully arching; this variety is greatly used for market. Of Garden origin.

P. s. polydactyla. This resembles the species, both in habit and size, the difference being the ends of all the pinnæ several times fingered or divided, and much lengthened. Of Garden origin.

P. s. Shoreii. A fine crested variety, and more pendulous than any other variety. Of Garden origin.

P. s. variegata. This is a strong-growing variety, the pinnæ broader than the species, and has the centre of the pinnæ creamy white, and green on the edges, something in the way of *P. cretica albo lineata*. Of Garden origin.

P. s. variegata cristata. A variety of the preceding, with the apices of the pinnæ terminating in a crested form. Also of Garden origin.

P. setigera. See *Platyloma falcatum*.

P. straminea, P. crispa. This grows from fifteen to thirty inches long, and pinnate, the pinnæ pinnatifid, and beautifully undulated, of an intense green colour, and rather arching in habit. A green-house species, from Chili.

P. sulcata. This grows from one to three feet high, of an arching habit, and pinnate, the lower pair bi-partite, the other pinnæ deeply pinnatifid, of a light green colour and thinnish texture, the stipes of a yellowish green colour. Native of Brazil, but will do well in a green-house temperature.

P. sulcata monstrosa. A strong-growing variety of the preceding, with all the parts much larger, and in some cases seem to be interrupted in its growth. Of Garden origin.

P. sulphurea. See *Cheilanthes Borsigiana*.

P. ternifolia. See *Pellaea ternifolia*.

P. tremula. This has fronds one to three feet long, of a stiff habit and several times divided into linear segments, of a deep green colour; the stipes of a brownish colour and very brittle, it produces itself from spores very freely. A green-house species, from New Zealand.

P. tremula angustifrons. A variety with the apices of the pinnae caudate, and has also a tendency to fork, both in the pinnae, and pinnules. A green-house variety, introduced from the Azores.

P. trichomanoides. See *Nothochlana trichomanoides*.

P. tricolor. This grows from twelve to eighteen inches high, and pinnate, the pinnae deeply pinnatifid, and the lower pair bi-partite, the centre of each pinnae rosy red, and a margin of white on each side, the outer margin a rich shining green, contrasting well with the other parts. A very pretty stove fern, but seldom seen at all like perfection. Native of the East Indies.

P. umbrosa. This grows from one to three feet high, bi-pinnate on the lower part of the fronds, pinnate only on the upper part, the fertile fronds longer than the sterile, and the pinnae also much longer, a fine plant for a green-house temperature, and is a native of New South Wales.

P. vespertilionis. See *Litobrochia vespertilionis*.

P. vittata. See *P. Longifolia*.

Pycnopteris. See *Iastrea*.

RHIPIDOPTERIS.

Rhipidopteris. *Schott*, derived from *rhipis*, a fan, and *pteris* a fern, from the fan-like form of fronds. A pretty little fern, and only a few inches high, and of a very distinct habit, making a nice companion for the pretty little *Actinopteris*; it is best grown in fibrous peat, in shallow pots, or pans, and propagated by dividing the plants.

R. peltata. A pretty little species from three to six inches high, and several times divided, in a dichotomous manner, and slightly coriaceous in texture, and reminding one of a miniature fan palm, the fertile fronds are rather round, and the underside entirely covered with sori, the upper surface of a dark green colour. A stove species, from the West Indies.

R. peltata gracillima. A large-growing variety of the preceding, growing about twice the size, and more delicately cut, so as to give it a much finer appearance. A stove fern.

Ruta muraria major. See *Pteris heterophylla*.

Saccoloma. See *Davallia*.

SADLERIA.

Sadleria. A genus of ferns that has been known to botanists for many years, but of recent introduction, in the way of living plants. It forms a small arborescent stem, the fructification is the same as the genus *Blechnum*, but is quite different in the venation, forming as it does a series of costal arches; it grows well in a mixture of peat and sand, and propagated by divisions, when obtainable, and also by spores.

S. cyatheoides. This forms a stout stem, two to three feet high, with the fronds three or four feet long, and deeply bi-pinnatifid, and of a coriaceous

texture, the pinnæ regularly pinnatifid, and articulate with the rachis and of a bold and arching habit. A green-house species, from the Sandwich Islands.

SAGENIA.

Sagenia, Presl. Of doubtful origin, but probably from *sagene*, a large net, the fronds being covered with wide spread veins. A genus closely related to *Aspidium*, the principal distinction is the wide-spread veins, and the sori placed on the top of a small vein, they are best grown in peat, and loam, with an addition of sand, and propagated by dividing the plants.

S. cicutaria. S. hippocrepis, Aspidium cicutaria. Aspidium hippocrepis, Polypodium cicutarium, Polypodium hippocrepis. The fronds of this are bi-pinnatifid, from one to two feet high, of a light green colour, and crenated at the margins, a very pretty species, requiring a stove temperature. Native of Jamaica.

S. decurrens, S. pteropus. This has pinnatifid fronds, growing from two to three feet long, with the stipes winged, nearly to the base; it has both barren and fertile fronds, the fertile ones curiously turned up at the edges, the sori brownish yellow, kidney-shaped, and very prominent. A stove species, from the Isle of Luzon, and other places.

S. hippocrepis. See *S. cicutaria*.

S. pteropus. See *S. decurrens*.

S. repandum. The fronds of this species are pinnate, from two to three feet high, and of a bright green colour; the fertile fronds rather arching, the pinnæ of the sterile fronds are drooping, and often one foot long. A stove species, from the Isle of Luzon.

SALPICHLÆNA.

Salpichlæna. *J. Smith*, from *Salpinx*, a tube, and *chlaina*, a cloak, in reference to the covering of the sori. A genus closely allied to *Blechnum*, with the indusium covering the sorus in a pipe-like form. The fronds grow to an indefinite length, and belong to the class known as climbing ferns. It grows best in fibrous peat and sand. Propagated best by divisions, when obtainable.

S. volubile, *Lomaria volubile*, *Blechnum volubile*, *B. scandens*. This has bi-pinnate fronds, growing to an indefinite length, with arching pinnæ, nearly two feet long, and of very effective appearance, but is not seen in very many collections in a prosperous condition, but is found often in a sickly condition, by the name of *Blechnum*. It requires plenty of room, when in a healthy state, and also to be grown in a stove temperature. Native of South America.

Schellolepis. See *Goniophlebium cuspidatum*, and *G. subauriculatum*.

Schizocæna. See *Cyathea sinuata*.

SCHIZEA.

Schizea, *Swartz*, from *Schizo*, to cleave, the appearance of the fan-like spikes. A genus of handsome plants, delighting in a close and humid atmosphere, and growing best in a mixture of leaf mould, peat, and silver sand, it requires plenty of water, both at the roots, and on the fronds, and best propagated by dividing the plants.

S. dichotoma. A very pretty species, with fronds six or eight inches high, and dichotomously flabellate, and divided into narrow segments greatly resembling a small fan-leafed palm, the fertile fronds are much

contracted, and bear the crested clusters of sori. A green-house species, from New Zealand.

S. elegans. A singular-looking species, with the sterile fronds from nine to fifteen inches high, and six to nine inches broad, dichotomously flabellate, the fertile ones are narrower, and bear on the points of the segments clusters of pinnate crest, on which are seated two rows of sessile sporangia, the fronds are of a light green colour. A stove species, from Trinidad, and other places.

S. pusilla. This has a different appearance from the two preceding, the fronds are simple, the barren ones two or three inches long, very narrow and linear, the fertile ones of the same shape, and a little longer, and has on the point a pinnate crest, bearing the sori. A green-house species, from New Zealand.

SCOLOPENDRIUM.

Scolopendrium, *Smith*. From *scolopendra*, a centipede, in allusion to the form of the sori. The common hart's-tongue fern is one of this genus, but the species here mentioned is quite distinct, being pinnate, somewhat resembling some of the *Lomarias*, it grows best in peat and sand, and propagating by dividing the plants.

S. hemionitis. See *Asplenium palmatum*.

S. Krebsii, *Lomaria Australis*, *L. densa*, *L. punctiloba*, *Onychium Krebsii*. This has pinnate fronds of an ovate lanceolate form, the lower pinnæ auriculate at the base, the fronds from twelve to eighteen inches long, and of a very dark green colour, the fronds when fertile are contracted. A green-house species, from the Cape of Good Hope, and other parts of Africa.

S. rhizophyllum. See *Camptosorus rhizophyllum*. •

SELLIGUEA.

Selliguea, *J. Smith*. Name derived probably from the Javanese. The chief features of this small genus is the sori, placed in thick and continuous lines, between the principal veins, it has been placed by different authors, as *Gymnogramma*, *Grammitis*, *Hemionitis*, and other genus, they grow well in fibrous peat and sand, and propagated by divisions, and spores.

S. caudiformis, *Grammitis caudiformis*, *Polypodium caudiforme*, *S. plantaginea*. The fronds of this species are simple and entire, and has both barren and fertile fronds; the former ten to twelve inches long, and caudate at the apex, and about four inches broad, the fertile ones narrow only about half the width, the sori in continuous lines between the principal veins, and of a dark brown colour, the fronds dark green and rather coriaceous in texture. A stove fern from Java.

S. plantaginea. See *S. caudiformis*.

S. pothifolia, *Grammitis decurrens*, *Hemionitis pothifolia*. This is quite distinct from the preceding, the fronds are pinnatifid, the pinnæ six inches long, and one broad, of a thin texture, and a light green colour. A stove species, from Nepaul, the Fijis, and other places.

SITOLOBIUM.

Sitobium Desvauz. From *sitos*, wheat, and *lobos*, a lobe, in reference to the form of the lobes of the frond. A genus closely related to *Dicksonia* and *Dennstaedtia*, they are of a very free growth, the first mentioned species is hardy and deciduous, while *rubiginosum* is best grown in a stove, it makes a fine plant for the decoration of the house, as it is rather

coriaceous in texture, they grow well in peat and loam, and are easily propagated by dividing the plants.

S. adiantoides. See *Dennstaedtia adiantoides*.

S. moluccana. See *Dennstaedtia moluccana*.

S. punctilobulum. *Dennstaedtia punctilobula*, *Dicksonia punctilobula*, *Dicksonia pubescens*, *Dicksonia pilosiuscula*. A hardy species from one to two feet high, of a lanceolate form and sub-tripinnately divided into fine segments of a light green colour, the stipes and rachis reddish brown. Native of North America.

S. rubiginosum. A strong-growing species, from one to four feet high, of an ovate lanceolate form, and tri-pinnately divided into oblong obtuse segments, which are deeply toothed, and of a dark green colour, the fronds when fertile are very much contracted, the basal pair of pinnae are usually opposite, while the others are alternate, the stipes are of a yellowish green colour, and slightly pubescent. A stove species.

Stegania. See *Lomaria*.

STENOCHLÆNA.

Stenochlæna J. Smith. From *stenos*, narrow, and *chlæna*, a cloak, in allusion to the indusium. A genus of climbing ferns, the rhizome climbing to an indefinite length, and makes fine plants for covering damp walls in the fernery, or wire pillars filled with peat, this genus is closely related to *Lomaria*, the fertile fronds are much contracted, and grows well in fibrous peat, and sand, it is propagated by dividing the plants.

S. heteromorpha, *Lomaria jilliformis*, *L. propinqua*, *Lomariopsis heteromorpha*. The fronds of this species are pinnate, and six or eight inches long, with a thin wiry rhizome, and as well as the rachides is clothed with reddish-brown scales, the fertile pinnae linear,

while the barren ones are rather round, becoming oblong in old plants, and has the margins deeply toothed, the creeping rhizomes soon fasten themselves to stumps of wood or tree ferns; it will do well in a green-house temperature, and rarely produces fertile fronds. Native of New Zealand.

S. Meyeriana, *S. tenuifolia*, *Lomaria tenuifolia*. *Lomariobotrys tenuifolia*. The barren fronds of this species are pinnate the pinnæ somewhat distant, and of a thinish texture, and bright light green colour, the fertile fronds are bi-pinnate and very much contracted the pinnæ seven or eight inches long, the sori covering the whole under surface. A stove species, from South Africa.

S. scandens. A strong-growing species, with large pinnate fronds, two or three feet long, broad and of an oblong acuminate form and dark shining green colour, and furnished at the edges with spinous teeth the fertile pinnæ linear, and contracted, and very rarely produced, it requires a stove temperature, as it is a native of East Indies.

S. tenuifolia. See *S. Meyeriana*.

Stenolobus. See *Davallia*.

Stenoloma. See *Davallia*.

STENOSEMIA.

Stenosemia Presl. From *stenosemos*, a narrow edge, referring to the fertile fronds. A genus of ferns with only one solitary species in cultivation, they succeed well grown in peat and sand, and propagated by divisions, when obtainable, and also by spores.

S. aurita, *Acrostichum auritum*, *Polybotrys aurita*. A very beautiful species with an erect caudex, from which grows both sterile and fertile fronds, the former

ternately pinnate, and from six to eighteen inches high, the pinnae lacinatedly lobed, and viviparous, the fertile fronds have the pinnae contracted, so as to become linear, and wholly spore bearing, sometimes fronds are produced intermediate, in form, between the barren and fertile ones. A stove species, from Java.

STRUTHIOPTERIS.

Struthiopteris, *Willdenow*, from *struthio* an ostrich, and *pteris*, a fern, from the resemblance of the fronds to feathers. A genus commonly called the ostrich fern, and bearing their fronds in a shuttle-cock form, and perfectly hardy, and easily propagated by their underground rhizomes, they produce fronds of two forms, the fertile fronds narrower than the sterile, and grow in a circle inside the barren ones, they will grow well in leaf-mould, and loam, and should be grown in every fernery.

S. *Germanica*, *Osmunda struthiopteris*. This produces fronds from one to three feet high, with broad pinnate fronds, and beautiful arching sterile fronds, the fertile ones are much narrower, and erect, and grow inside the barren fronds, and set off by the spreading green pinnae, of the sterile ones. A fine hardy and deciduous species, native of Germany.

S. *Japonica*. This grows from twelve to eighteen inches high, with the barren fronds pinnate, and broad, spreading, of a dark green colour, and throwing up its fertile contracted fronds, in the centre of the plant. A hardy deciduous species, from Japan.

S. *orientalis*. See *S. Japonica*.

S. *Pennsylvanica*. This has the appearance of being a large variety of *Germanica*, and more

erect in habit. A deciduous species, from North America.

Synamina. See *Pleopeltis*.

TÆNOPSIS

Tænopsis *J. Smith.* from *taina*, a strap, or fillet, and *opsis*, resemblance, in reference to the strap-like form of the fronds, the veins are regular and internal, the sori produced in continuous lines, on the margin of the fronds, there are only two species that I know, and these are rarely seen in private collections.

T. graminifolia. This grows from nine to twelve inches high, with simple fronds, long and narrow, very much resembling grass, of rather erect habit, with the ends rather drooping, the margins undulated. A very pretty stove species, from the West Indies.

T. lineata. The fronds of this species grow from one to two feet long, and very narrow, only about a quarter of an inch wide, and pendulous, it is of very quick growth, and does well as a basket plant. Also a stove species, from the West Indies.

Tænitis angustifolia. See *Pteris angustifolia*.

Tectaria coriacea. See *Polystichum capense*.

THAMNOPTERIS.

Thamnopteris, *Presl.* This has only two species that I am acquainted with, and these make fine large specimens, having simple fronds, of a pleasing green colour, and form their fronds in a circle, and always has a hollow centre, they are commonly called bird's nest ferns, they may be described as being somewhat like a giant *Scolopendrum*. They will do well in rather a loose mixture of peat, sphagnum, and sand, as they are rather epiphytal at their haunts, these also do well

out of doors in the summer, if not too much exposed. They have been greatly used in sub-tropical gardening, and have a grand effect, they are also known under the name of *Asplenium*, and *Neottopteris*, and are easily propagated by spores.

T. Australasica, *Asplenium Australasica*, *Neottopteris Australasica*. A very strong-growing species, with fronds about four feet long, simple and of an elliptic lanceolate form, and light shining green colour, it is about six inches wide in its broadest parts, the midrib black and shining, the sori placed in lines, one of the grandest of ferns, and will do in a greenhouse temperature. Native of New South Wales.

T. nidus *Asplenium nidus*, *Neottopteris nidus*. A species similar to the preceding, growing as it does to about the same size, the chief distinction is the fronds being the same size the entire length, and are more spreading in habit, this is best grown in a stove temperature, being a Native of the East Indies.

THYRSOPTERIS.

Thyrsopteris, *Kunze*. From *thyrsus*, a staff, and *pterus*, a fern, alluding to the contracted fertile portion of the frond. This genus has but one solitary species, and even that is very rare, it is of arborescent growth, the fertile fronds contracted, so that they appear like large paniced racemes, whilst the involucre are calyciform; it grows best in a mixture of peat, and loam, with plenty of moisture when growing.

T. elegans, *Panicularia Berterii*. This has broad, thick and leathery decom pound fronds, of a bright green colour, and growing five or six feet long, with an arborescent caudex, the fertile fronds are much

contracted, so as to appear like panicles, it will grow in a warm green-house temperature. Native of Juan Fernandez.

TODEA.

Todea, Swartz. In honour of Henry Julius Tode, an experienced mycologist of Mecklenburg. A genus of very ornamental ferns, with some of the species belonging to that charming class known as filmy ferns, and these have been separated by some authors, and placed under the name of *Leptopteris*, which really means slender fern, some of the species form a stem, from one to two feet high, and as much in circumference, while one *Wilkesiana*, forms a slender stem, from one to seven feet high, and about the size of an ordinary walking-stick; the thick fronded species form large spreading fronds, borne on the top of a large upright rhizome, the filmy species do best in fibrous peat, and sand, with bits of sandstone, mixed in it, while the others grow in peat, and loam, with a little sand, for further particulars on their culture. See chapter on filmy ferns.

T. arborea. See *T. Africana*.

T. Africana, *T. arborea*, *T. Barbara*, *Osmunda Barbara*. A strong-growing species, with fronds four or five feet long, and bi-pinnately divided into linear pinnules, of a bright dark green colour, and serrated, the underside of the fronds densely covered with reddish brown sori, it forms a large upright caudex, and makes a fine specimen. A green-house species, from South Africa.

T. Australis. This somewhat resembles the preceding, but the pinnules are longer, and larger in every way, and clothed on the under surface with sori

much larger than *Africana*. A green-house species, from New Holland.

T. Barbara. See *T. Africana*.

T. Fraserii. A beautiful and rare species somewhat resembling *hymenophylloides*, but the fronds are longer and larger in all its parts, and like that species, has that pellucid and dark green colour. It is a native of New Zealand, and will do in a temperate house.

T. hymenophylloides, *Leptopteris hymenophylloides*. This has an erect caudex, and in time forms a large stem, with fronds one to two feet long, and twice divided, triangular in form, deep green, and pellucid, a grand plant and does well in a green-house, and also in a Wardian case. It is a native of New Zealand.

T. h. var compacta, *Leptopteris*. A variety of the preceding, of very compact growth, and more dense habit, also a native of New Zealand.

T. intermedia, *Leptopteris intermedia*. This has a triangular-shaped frond in the way of *hymenophylloides*, and the crispy appearance of *superba*, thus being an intermediate form between the two. This is very rare, and also a native of New Zealand.

T. superba, *Leptopteris superba*. A splendid species and almost impossible to describe the beauty of it, it forms a large and erect caudex, with age, and a dense crown of ovate lanceolate fronds, from ten to twenty inches long. The segments are finely divided, of a brilliant sea-green colour, beautifully undulated and crisp, the points of the segments curl up over the surface of the fronds, reminding one of a beautiful ostrich feather. This also will do in a cool house, being a native of New Zealand.

T. superba plumosa. A seedling obtained from the preceding by Messrs. J. Veitch and Sons. It is of dwarf

compact habit, the fronds shorter, and ovate, and bristling, with the small erect segments. A nice fern for growing in a Wardian case.

T. Wilkesiana, *Leptopteris Wilkesiana*. A species forming a small stem, from one to seven feet high, and as slender as a walking-stick, with a plume-like head of delicate membranous fronds of a broad lanceolate form, and two feet long, the pinnæ sessile, lanceolate and spreading, the pinnules oblong obtuse, dentate and pellucid. A stove species, from the Fiji Islands.

TRICHOCARPA.

Trichocarpa. *J. Smith*. From *thrix*, a hair, and *carpa*, fruit, referring to the sori being placed on little hairs. This genus has but one species, and that is very interesting and ornamental, the sori is exserted, and the veins anastomosing; with a short creeping rhizome and slender stipes of a dark shining purple, it was found by Mr. C. Moore, Director of the Botanic Gardens, Sydney, on the south side of Copenhagen River, New Caledonia, after whom the species is named. It succeeds well in fibrous, peat, and sand, and best propagated by dividing the plants where possible.

T. Moorei, *Cionidium Moorei*, *Deparia Moorei*. The fronds of this species grow from twelve to eighteen inches long, of a membranous texture, and triangular pedately bi-pinnate, with from five to seven lanceolate acuminate pinnæ, and anastomosing veins, the sori exserted, placed on the ends of the venules in a cup-like form; although found some thirty years ago, it is still rare and seldom seen, it requires a stove temperature. A native of New Caledonia.

TRICHOMANES.

Trichomanes. *Linnaeus* from *thrix*, a hair, and *manos*, soft, in reference to the shining stems appearing like fine hair. A genus of very handsome species, known as filmy ferns, thus requiring to be grown in a temperature which is heavily charged with moisture. The chief features of the genus is the membranous texture, and the cap-like form of the indusium, which is, in most instances exerted, so much as to form a principal feature of the species; one or two species have simple fronds, while all the others are more or less divided, they vary in length in the different species from one inch to eighteen inches; some of the species do not make any adventitious roots in their growth, but receive their nourishment from the true roots which are affixed to the soil, *Ankersii* and *brachypus* are instances of this, some of the species that are potted should have a compost of fibrous peat, small lumps of sandstone, and charcoal, the different species are widely distributed throughout the world, one species only being native of our country. For further particulars see chapter on filmy ferns.

T. achillæfolium. An upright species, growing from nine to eighteen inches high, and thrives best in peat and sphagnum and small pieces of sandstone. A species widely distributed, being a native of Java, Borneo, and other places.

T. alatum. This grows about a foot high with rather broad lanceolate fronds tapering to a point, deeply pinnatifid, and slightly arching, and remarkable for their pale green colour and transparency, it has a very short caudex and thrives best on a block of wood or sandstone. A stove species, native of the West Indies.

T. anceps. This grows in some instances two feet high and nearly one foot broad, the fronds are of a triangular form and a beautiful dark green colour, the spore cases hanging very conspicuous from the under-side of the frond. It is an upright-growing species, growing well in fibrous peat and sphagnum with pieces of sandstone. A stove species, from Trinidad, Guiana, and Brazil.

T. angustatum. A pretty little species, with the fronds cut into delicate segments, and from three to six inches long, and of a very bright green colour. It has a slender rhizome which grows very freely on a log of wood, or sandstone. A stove species, from South America, and the West Indies.

T. Ankersii. This resembles *alatum* in its scandent habit, but is abundantly distinct from it, the fronds are nearly sessile, broadly lanceolate, and deeply pinnatifid at the base, the segments oblong, firm in texture, and also pinnatifid at the base. A stove species, native of British Guiana.

T. attenuatum. This also resembles *alatum*, with the ends of the fronds attenuated, it grows well on the stems of tree ferns, and also on pieces of sandstone. A stove species, from the West Indies.

T. auriculatum. This has creeping rhizomes, with pinnate fronds from six to twelve inches long, of a membranous texture, the pinnæ broad and obtuse when barren, but when fertile rather inclined to be pinnatifid, and of a deep sea green colour. This is one of the finest filmy ferns in cultivation. It requires a stove temperature, it is a native of Mountain Forest in Java.

T. Bancroftii. A beautiful compact-growing species, with ovate fronds deeply pinnatifid, crisp at

the margins, from three to six inches high, and of a pale green colour. A stove species, from the West Indies, and Peru.

T. bilabiatum. See *T. filicula*.

T. Bojerii. A pretty little species having simple fronds flabelliform, and crenated at the edges, and seldom more than an inch long, of a deep green colour; in its native haunts it is found almost always on the stems of tree ferns. A stove species, from the Mauritius.

T. brachypus. The fronds of this species are scandent, supporting themselves on anything near, of an ovate oblong form, and bi-pinnatifid, of a very thin texture, and bright light green colour. A stove species, from the West Indies, and South America.

T. canariensis. See *Davallia canariensis*.

T. crinitum. A tufted species having pinnate fronds six to eight inches high, the segments cut, and broadly oblong, and clothed with soft ferrugineous hairs, and of a glaucous green colour. A stove species, native of Jamaica.

T. crispum. This also is a tufted-growing species, with pinnate fronds of a lanceolate form, from six to eighteen inches long, and of a rich deep green colour; the pinnæ oblong obtuse, and beautifully crisp. The sori is very much exserted on the apex of the fronds, which gives the whole plant a very beautiful appearance. A stove species, found in the West Indies, and South America.

T. elongatum. An elegant species of a tufted habit and with an erect caudex, the fronds from six to nine inches long, and bi-pinnate, dense ovate in outline, and deep green colour; it has the appearance of being related to *rigidum*, but is quite distinct from

that species. A green-house species, native of New Zealand.

T. exsectum. A species with a creeping rhizome, the fronds slender tri-pinnatifid, and pendulous in habit. The fronds are ten to twelve inches long, and six inches wide, the segments finely divided, and of a vivid green colour. A green-house species, from Juan Fernandez.

T. filicula, *T. bilabiatum*, *Hymenophyllum alatum*. This species has a creeping rhizome which is densely clothed with black woolly hairs; the fronds are bi-pinnate, from three to six inches long, and of an ovate lanceolate form, and dark green colour; it is best grown on a block or piece of sandstone. A stove species; from the East Indies.

T. fimbriatum. A climbing species with the fronds from six to eight inches long and pinnate, the pinnae of a pale green colour and undulated at the margins. A stove species, from the West Indies.

T. floribundum *T. pennatum*. This has a tufted caudex, with the fronds pinnate, from six to fifteen inches long, and the pinnae from two to five inches in length the terminal one much longer, it is of a bright green colour and very transparent; the fertile fronds much narrower than the barren ones, the sori thickly set on the edges and much exserted, the barren ones proliferous at the point. A stove species, from the West Indies, and various parts of South America.

T. humile. A dwarf-growing species seldom exceeding three inches in height, and bi-pinnate, of a lanceolate form and bright green colour; it has a creeping rhizome of free growth and makes a nice plant for a fern case, or green-house temperature. A native of New Zealand, and various Islands of the Pacific.

T. Japonicum. See *Onychium lucidum*.

T. Javanicum. This grows from six to ten inches high and pinnate, the pinnae cuneate at the base, and obtuse at the apex and about an inch long. It has an erect caudex, and rather harsh texture. A stove species, from the Indian Archipelago.

T. Kauffussii. A robust and erect-growing species with fronds nine to eighteen inches long, and very broad, pinnatifidly divided, of an ovate lanceolate form, and furnished with numerous stellate hairs and of a dull green colour; it requires a heavier soil than most species. It is a native of the West Indies, and British Guiana, and requires a stove temperature.

T. Kraussii. This is an elegant little species with deeply pinnatifid fronds, from two to four inches long and of an oblong form. It has a creeping rhizome and grows best on a log of wood, or tree fern stem. A stove species, from the West Indies.

T. longisetum. This species has finely divided fronds, from six to twelve inches high and erect, the rachis winged, and somewhat resembles *meisifolium*, being of a dark green colour. It is a stove species, from the Isle of Bourbon, Borneo, and other places.

T. Luschnatianum. A fine climbing species with sessile fronds, ten to eighteen inches long, deeply pinnatifid, and of an oblong lanceolate form, and bright rich green colour; it grows best on a block or sandstone. Although liking plenty of moisture it is very impatient of having its fronds syringed. A stove species, from Brazil.

T. maximum. This produces fronds from one to three feet long, and from four to six inches wide, one of its chief features is that the fronds are nearly the same width, the entire length. The fronds are

tri-pinnate, and ovate oblong in form, and pale green colour. A stove species, from Java.

T. meifolium. This species is seldom seen, being very rare and appears difficult to manage, the fronds are from six to twenty inches long, bi-pinnate, and ovate lanceolate in form, and erect growth, the segments curled so as to have a beautiful crisp appearance. A stove species, from Java.

T. membranaceum. The fronds of this species are two to three inches long, and one to two inches wide, obovate, and cuneate at the base, of an intense deep green colour, and cut at the edges. It is best grown on a lump of sandstone. A stove species, from the West Indies.

T. muscoides. A dwarf species growing two to three inches high, with simple fronds of an oblong form, and erect habit, pellucid, and bright green in colour, and the margins undulated. It grows well on a block of wood or sandstone, and forms a dense carpet. A stove species, from the West Indies.

T. parvulum. A pretty dwarf-growing species with the fronds about an inch long, reminding one of a miniature fan palm; it is of a dense matted habit, and shining green colour. It grows well on a block in a green-house temperature. Native of Java, Bourbon, and the Philippines, as well as parts of Japan.

T. pluma. This has an erect caudex with the fronds six to twelve inches long, and finely divided, so much so as to give it quite a feathery appearance. A stove fern, from Borneo.

T. pyxidiferum. This has a slender wiry and creeping rhizome, with the fronds two and three times divided, and two to three inches long, the segments are plain, smooth, and deep green colour,

and of a very quick growth. A green-house species, with a wide geographical range, being found in the West Indies, West Africa, and South America.

T. reniforme. This has a creeping rhizome, with the fronds simple, and nearly round, or as the specific name implies kidney shape, of a coriaceous texture, and rich green colour, and in good specimens are four or five inches broad; the sori are exserted so much as to form a fringe on the edges of the fronds when fertile. A green-house species, from New Zealand.

T. reptans. A very small-growing species, with wedge-shape fronds, one inch to one-and-half inches high, and bright green in colour. A stove species, from the West Indies.

T. rigidum. A species rather difficult to establish, it has an erect caudex, with fronds a foot long, bi-pinnately divided, with the segments finely divided and ovate acuminate form, of an intense deep green colour. A stove species, widely distributed throughout the Tropics.

T. rufum. This grows from six to nine inches high, and one-and-half inches broad, pinnate, the pinnae overlapping each other, and the veins exserted at the apices; the underside of the frond as well as the stipes are clothed with long rufous woolly hairs. It is of an erect growth, and pale green colour. A stove species, from Demerara.

T. scandens. A scandent-growing species with fronds from ten to fifteen inches or more in length, of a light green colour, and pubescent. It is best grown on a block of wood, or stem of a tree fern. A stove species, from the West Indies.

T. Sellowianum. A very pretty species of the *crispum* form; the fronds are linear lanceolate in form,

and deeply pinnatifid, the segments oblong, and obtuse, waved at the edges, with a few hairs, and of a bright green colour; the stipes are also clothed with short hairs. A stove species, native of Brazil.

T. sinuosum. This has pinnatifid fronds of a lanceolate form, from four to nine inches long, and are abundantly produced on the creeping rhizomes, and are pendent, and of a pale shining green colour, and almost transparent. It is best grown on a block or tree fern stem, as in that position it can be seen to advantage. A stove species, from the West Indies, and Peru.

T. spicata. See *Feea spicata*.

T. trichoidium. This has a creeping rhizome with fronds of a lanceolate form, and tri-pinnately divided into narrow and delicate segments not much larger than a hair, the spore cases like little cups, appear very conspicuous among the segments, which are of a vivid green colour. A green-house species, from New Grenada, and found at considerable elevations. It is also very plentiful in various parts of the West Indies.

T. venosum. This has a small thread-like rhizome, with pinnate fronds two to four inches long, the pinnæ small, linear, very thin in texture, and light shining green colour. It is found in its native habitats growing on the stems of tree ferns. Native of New Zealand, so that it will grow in a green-house temperature.

T. Zollingerii, A fine strong-growing plant and very much resembling *Javanicum*, but the pinnules are more rounded, and a very deep green colour. A stove species, from Java.

Trichopteris excelsa. See *Alsophila Tænitis*.

WOODSIA.

Woodsia. *R. Brown*. Named in honour of Joseph Woods, an English botanist. A very pretty genus of a deciduous habit, the chief features of distinction is the auriculated stipes, and the fringe-like indusium around the clusters of spores when mature, there are two species native of our island, and both are extremely rare. The species are all propagated by divisions and spores, and are best grown in equal parts of peat and loam with an addition of silver sand.

W. Mexicana. See *W. mollis*.

W. mollis *W. Mexicana*, *Physomatium molle*. This grows from nine to eighteen inches high, of a lanceolate form, and bi-pinnately divided into segments of a light green colour, and clothed with soft hairs, so much so as to give it a soft appearance, hence the specific name. A green-house species, from Mexico.

W. obtusa, *W. Perriniana*. A rather dwarf-growing species with the fronds scarcely over exceeding a foot in height, and bi-pinnately divided into segments of rather a triangular form, and deeply pinnatifid. It grows well out of doors in sheltered situations, but in most instances it is best grown in a green-house. Native of North America.

W. Perriniana. See *W. obtusa*.

W. polystichoides. A species having pinnate fronds, of a dwarf habit, scarcely attaining the height of six inches; the fronds are densely clothed with scales, the pinnæ obtuse and crenate at the apex, the upper margin auriculated. A green-house species, from Japan.

W. p. Veitchii. This is less scaly than the preceding, with the pinnæ longer and broader, and in some instances auriculate on both margins. A green-house variety, also from Japan.

WOODWARDIA.

Woodwardia, *Smith*. Named in honour to Thomas Jenkison Woodward, an English botanist. A genus with strong-growing fronds of an arching habit, the sori sunk deeply in the frond and covered with a hollow indusium, the venation apparently divided into small irregular squares. Some of the species are viviparous, *Orientalis* for instance is extremely prolific, while *radicans* only produces young plants on the ends of the fronds, and is also a fine plant for vase, or small hollow tree stem, nearly all the species will grow well out of doors, in sheltered situations, *areolata* and *Virginica* are deciduous; they all grow well in a mixture of peat or leaf-mould and loam, and are propagated by the young plants that are formed, and by dividing the plants.

W. angustifolia. See *W. areolata*.

W. areolata, *W. angustifolia*, *W. onocleoides*, *Lorinseria areolata*, *Osmunda carolinea*. This grows from twelve to eighteen inches long, with barren and fertile fronds dissimilar, the former nearly pinnate, with broad lanceolate pinnæ and serrated at the margin; the fertile ones more erect and contracted, and has an underground creeping rhizome. A hardy species, from North America.

W. Fortuneii. See *W. Orientalis*.

W. Japonica, *Blechnum Japonicum*. A very pretty species growing from one to two feet high, having pinnate fronds, with the pinnæ broad and pinnatifid, and again serrated on the margins of the lobes, and of a very heavy green colour. A green-house species, from Japan.

W. orientalis, *W. Fortuneii*. A strong-growing

species, in some instances to the length of four feet, and bi-pinnatifid, and produces a profusion of young plants on the upper surface of the fronds. A green-house species, from China, and Japan.

W. radicans. This is a grand species with broad arching fronds, two to four feet long, and nine to eighteen inches broad in its widest part, pinnately divided, with the pinnae deeply pinnatifid, of a bright colour, the fronds producing young plants on the green apex. A green-house species, from Madeira.

W. r. Brownii. The pinnae and pinnules of this variety differs from the normal form, through being extensively divided, and broadly crested; the main apex often has a crest several inches in width. A green-house fern, from the Isle of Michael.

W. r. cristata. This is also a crested form, slightly different from the preceding. Of Garden origin.

W. virginica *Anchistea Virginica*, *Doodia Virginica*. A bi-pinnatifid species, with fronds from one to two feet long, of a pale green colour and borne on an underground creeping rhizome. A hardy deciduous species, from North America.

XIPHOPTERIS.

Xiphopteris, *Kaulfuss*. Named from *xiphos*, a sword, and *pterus*, a fern, in reference to the form of the fronds. A genus with only a few species in cultivation, and very seldom seen to perfection. The species here mentioned has a suberect rhizome and produces the sori on the upper part of the frond which is confluent, and parallel with the midrib; it is best grown in peat and small pieces of sandstone and propagated by divisions when obtainable.

X. serrulata, *Grammitis serrulata*. A small-growing species two to four inches high with simple fronds of a linear form, and deeply serrated and bright green colour. A very distinct fern requiring a stove temperature. Native of the West Indies.



SELAGINELLA.

Selaginella, *Springel*. The name is derived from the diminutive of *Selago*. This genus was formerly included with *Lycopodium* but are quite distinct from that genus in several points; one of the chief distinctions is the two forms of leaves they produce, the one much larger than the other, the smaller one being stipulæform, while the *Lycopodium* has only one form. In this genus there are some scarcely exceeding an inch in height, these are well suited for carpeting, or covering the ground, while some grow six or seven feet high and should be grown on a pillar or trellis, while in colour they reach to every imaginable shade of green, and some are variegated, *corsia arborea* and *uncinata* has an iridescent hue scarcely seen in any other vegetation, *serpens* is a curious species as it changes colour when placed in the dark, from green to white. There are a few additions of recent introduction which should be in every collection however small, they all grow well in a mixture of fibrous peat, and chopped sphagnum, and are most easy of propagation, some of the very dwarf-growing species are shown better to advantage when grown on mounds of soil, or slightly elevated above the rim of the pot or pan, they are all shade and moisture-loving plants, and should not be too much exposed to strong sunshine.

S. africana, *S. fulcrata*, *S. Vogelii*. A rather strong-growing species, from twelve to fifteen inches

high, and six to eight inches broad, of a triangular form, and are grown on the top of an underground stolon, and of a dark shining green colour. A stove species, from the Western part of Africa.

S. altissima. See *S. cæsia arborea*.

S. apoda. See *S. densa*.

S. apus. See *S. densa*.

S. argentea. See *S. serpens*.

S. ascendans. A sub-erect species with the branches divaricately arranged; it is of a deep rich green colour, while the apices of the branches are much lighter. A stove species.

S. atroviridis. A very distinct species with branches strong and flat, from nine to twelve inches high, and throwing out strong roots from the underside, the leaflets large and obtuse and of a very dark green colour. A stove species, from the East Indies.

S. cæsia. See *S. uncinata*.

S. cæsia arborea, *S. altissima* *S. lævigata.* A climbing species growing six to eight feet high or more, with the branches hanging gracefully; the foliage of a beautiful iridescent hue, rarely seen in vegetation. A stove species, from the West Indies.

S. Californica. A species somewhat resembling *caulescens*, but it is of a much more robust growth, with broad scales closely imbricated and deep glossy green colour. A stove plant, from California.

S. caulescens. An erect-growing species varying from six to eighteen inches high, the branches rather of a deltoid form, and closely set; the points when fruiting are contracted. A stove species, from the East Indies.

S. c. minus. A small-growing variety of the preceding; also from the East Indies.

S. ciliata. A very rare species, and has the peculiarity of only an annual duration; it grows from six to nine inches high, and two to four inches in breadth, the leaves are narrow and light green colour, the fruiting points much contracted, it reproduces itself by the little bulbs. A stove species, from Tropical America.

S. circinalis. See *S. cuspidata*.

S. conferta. This grows from nine to eighteen inches high, with the stipulæform leaves much larger than those on the branches, of a dark heavy green colour, the sporangia produced on contracted terminal spikes. A stove species, from Borneo.

S. convoluta, *S. parviflora*. A handsome and rosulate species, with the stems dichotomously branched, and of a very dark green colour. It is best grown under a bell glass, in a stove temperature. Native of Brazil.

S. cordata. See *S. filifera*.

S. cuspidata, *S. circinalis*, *S. pallescens*. This also is a rosulate species, and grows from six to twelve inches high, of rather an ovate lanceolate form, from two to four inches broad, and of a light green colour. A stove species, from Tropical America.

S. Danielsii. See *S. Martensii*.

S. delicatissima, *S. microphylla*, *S. stenophylla*. A very small-growing species of a decumbent habit, and very small leaves of a light green colour, and of a very free growth, fastening itself to the soil by the abundance of roots it produces on the under surface. A stove species, from Columbia.

S. densa, *S. apoda*, *S. apus*. This is, as the specific name applies, of dense habit. Scarcely exceeding an inch in height, which spreads very

quickly, forming a dense carpet of light green, and makes a nice plant for a fern case. A stove species, from Brazil.

S. denticulata, *S. helvetica vera*, *S. hortense*, *S. obtusa*. A very pretty ereeping species, of a very dark green colour, and orbicular leaves, another species, *Kraussiana*, is often confounded with this, but is quite distinct, it is hardy in some sheltered situations, but is best grown in a green-house. Native of Central Europe.

S. dichotoma. See *S. hæmatodes*.

S. dichrous. See *S. filicina*.

S. Erythropus. See *S. umbrosa*.

S. filicina, *S. dichrous*. This, in good healthy plants, grows from eighteen inches to two feet high, and nine to twelve inches wide, of a very bright green colour, the stem is bright red on the lower part, and about one-third of the entire length destitute of foliage. A stove species, from Peru, and other places.

S. flabellata. See *S. viticulosa*.

S. flexuosa. See *S. hæmatodes*.

S. formosa. See *S. Martensii*.

S. fulerata. See *S. Africana*.

S. Galeotii. *S. Schotti*. A rather loose-growing species, with the branches rather distant, the leaves small and ovate, and of a bright dark green colour. A stove species, from Mexico.

S. Griffithii. An elegant species of sub-erect habit, six to nine inches high, the apices of the fronds recurving in a graceful manner, and of a pale green colour. A stove species, from Borneo.

S. hæmatodes. *S. flexuosa*, *S. dichotoma*. A very effective caulescent species, growing from twelve to

eighteen inches high, and forms large branched triangular fronds, nearly a foot across, and is of the freshest green imaginable. It somewhat resembles *umbrosa*, but is much larger. A stove species, from Tropical America.

S. helvetica. A very dwarf-growing plant, rising only an inch or so from the ground, of a brilliant green colour, and forming a dense carpet, it does well out of doors in the summer, but is best grown in the green-house. Native of the Alps of Europe.

S. helvetica vera. See *S. denticulata*.

S. Hugelii. See *S. Martensii*.

S. inequalifolia. A robust, and erect-growing species, from one to two feet high, the fronds are nearly the same width throughout the whole length, and of a bright green colour, the fertile parts, which it produces very freely, are very much contracted, so much so as to form spikelet on the apices of the branches. A stove species, from Java.

S. involvens. A pretty rosulate-formed species, which is much branched and furnished with close-set foliage, of a bright green colour. It does well out of doors, in some sheltered places, but grows well in a cool fernery. Native of India, and other places.

S. i. variegata. A variegated form of the normal type, having the fronds beautifully marked with white, contrasting well with the green. Of Garden origin.

S. Jamaicensis. See *S. serpens*.

S. Japonica. This is of rather a rigid texture, and growing about a foot in height, it produces its fronds in a circular form, which are furnished with numerous lateral offshoots; of a dark green colour, and spreading habit. A green-house species, from Japan.

S. Kraussiana, *S. hortensis*. A dwarf-growing, creeping species, forming a dense carpet of bright green colour, it is best grown in a green-house temperature, but will grow well in the open air, during summer, it is often found in private establishments under the name of *denticulata*. Native of the South of Europe.

S. K. aurea. A variety of the preceding, with the tips beautifully variegated with bright golden colour. Of Garden origin.

S. K. variegata. This has a creamy white variegation, and in every other way like the species; also of Garden origin.

S. lævigata. See *S. cæsia arborea*.

S. lepidophylla. A very compact species of a rosulate form, and of a light green colour, three to six inches high, it is called by some the resurrection plant, on account of its rolling into a ball when dry, and after being immersed in water expands again. A very desirable and pretty stove species, from Mexico.

S. Lobbi. A fine robust species growing six to eighteen inches high, thickly branched, with broad leaves of a dark green colour, and producing masses of fertile spikes on the apices of the branches. A stove species, from Borneo.

S. Lyalli. This grows from six to fifteen inches high, with an underground stolon, the stems rising up singly from it, the fronds are of a ferruginous green; the fertile spikes are short and large, and borne on the points of the branches. A stove species, from Madagascar.

S. Martensii, *S. Danielsii*, *S. formosum*, *S. Hugelii*. A rather erect-growing species from six to eight inches high, the stems are densely clothed with broad dark

shining green leaves, and produces a quantity of roots on the under surface. A stove species, from Mexico.

S. Martensii variegata. A variety of the preceding, the difference being the beautiful white blotches of variegation, being in an irregular form, thus contrasting well with the dark green. Of Garden origin.

S. microphylla. See *S. delicatissima*.

S. mutabilis. See *S. serpens*.

S. obtusa. See *S. denticulata*.

S. pallescens. See *S. cuspidata*.

S. paradoxa. See *S. convoluta*.

S. patula. A very dwarf species of dense habit, it makes a nice plant for growing in pans where it forms a beautiful carpet of bright green, it is rarely seen in private cultivation. A stove species, from the West Indies.

S. perelegans. This grows about a foot high with an erect, and nearly terete stem, of a pinkish red colour; the branches are alternate and horizontal, of a feathery appearance, the upper surface of a dull deep green colour, the under side paler and rather glossy, with a stalk-like base, closely pinnatifid, the secondary branches being mostly branched near the tips. A stove species, from Ceylon.

S. pilifera. *S. cordata*. A compact-growing species of a rosulate form, six to eight inches in diameter, of a pale green colour, if allowed to get dry it rolls up into a ball-like form. A stove species, from Texas.

S. Poulterii. A procumbent species and very small in all its parts, of a light green colour, and rather straggling habit. A green-house plant, probably of Garden origin.

S. pubescens. See *S. Wildenorii*.

S. Rollisonii. A rosulate-formed species somewhat resembling *cuspidata*, one of the distinct features is the main stem being furnished with roots, it grows three or four inches high, the fertile spikelets are about an inch long and has rather a bristly appearance. A stove species.

S. rubella. A small creeping plant of dense habit, of a very deep green colour, and somewhat of a reddish pink tinge. A green-house plant, of unknown origin.

S. rubricaulis, *S. suberosa*. A pretty little and distinct species, from six to eight inches in height, the base of the stem is slightly stained with red, the fronds of a beautiful bright green colour. A stove plant, from West Africa.

S. sarmentosa. A free-growing and creeping species, and rooting from its entire under surface, some of its longest stems often attain fifteen to twenty inches in length, and is of a pale green colour. A stove species, from West Indies.

S. Schottii. See *S. Galeotii*.

S. serpens, *S. argentea*, *S. Jamaicensis*, *S. mutabilis*, *S. variabilis*. A curious and very interesting plant, it is of creeping habit, of a bright green by day, but changing at night, or when placed in a dark place to a white colour. This is owing to a remarkable change of position, which takes place in the chlorophyl or green colouring matter of the leaves. A stove species, from Jamaica.

S. setosa. This has spreading fronds of a rich deep green on the upper surface, and slightly tinged on the under side with soft rose. A stove species, from Columbia.

S. stellata. See *S. stolonifera*.

S. stolonifera, *S. stellata*. *S. sulcata*. This grows from six to twelve inches long, having slender stems not much branched, the leaves somewhat distant, the apices thickish when fertile, the sporangia situated in the axis of the leaf. A stove species, from Brazil and other places.

S. suberosa. See *S. rubricaulis*.

S. sulcata. See *S. stolonifera*.

S. uncinata, *S. casia*. A rather rambling species rarely exceeding six inches in height, and may be known by the beautiful iridescent hue of the fronds, which is much improved if grown in the shade. A stove species, from China.

S. variabilis. See *S. serpens*.

S. Victoriæ. This is rather of a climbing habit, the old stems becoming bare towards the base, and throwing out new shoots after a period of rest. These climbing stems are produced at intervals on the creeping caudex, and are clothed with alternate ovate spreading branches, which are flat and closely pinnate, and has a great resemblance to the symmetrical fronds of a bi-pinnate fern. A stove species, from the South Sea Islands.

S. viticulosa. *S. flabellata*. A caulescent species, from ten to eighteen inches high, and six to eight in breadth, the stem is clothed the entire length, with imbricate leaves, and thickly branched, of a dull green colour on the upper surface and lighter beneath, with a beautiful feather-like appearance. A stove plant, from Columbia.

S. Vogelii. See *S. Africana*.

S. Wallichii. A robust-growing plant attaining in height, from two to three feet, it is caulescent, and of a deep shining green colour, the tips of the branches

bear slender pale green spikelets. A stove plant, from the Indian Archipelago.

S. Wildenovii. *S. pubescens*. A caulescent species and very finely divided, and grows from twelve to eighteen inches in height and six or eight inches in breadth, the leaves are small and very closely set, of a deep dull green colour; it is hardy in some parts of England, but is best grown in a green-house. Native of the East Indies.

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C. D. Mills,
BOOKKEEPER,
2, PALACE STREET,
KINGHAM GATE, S.W.
LONDON, E.C.

